Friend or Foe: Common Weeds of the Columbia River Gorge

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Noxious Weed Control Program

Outline

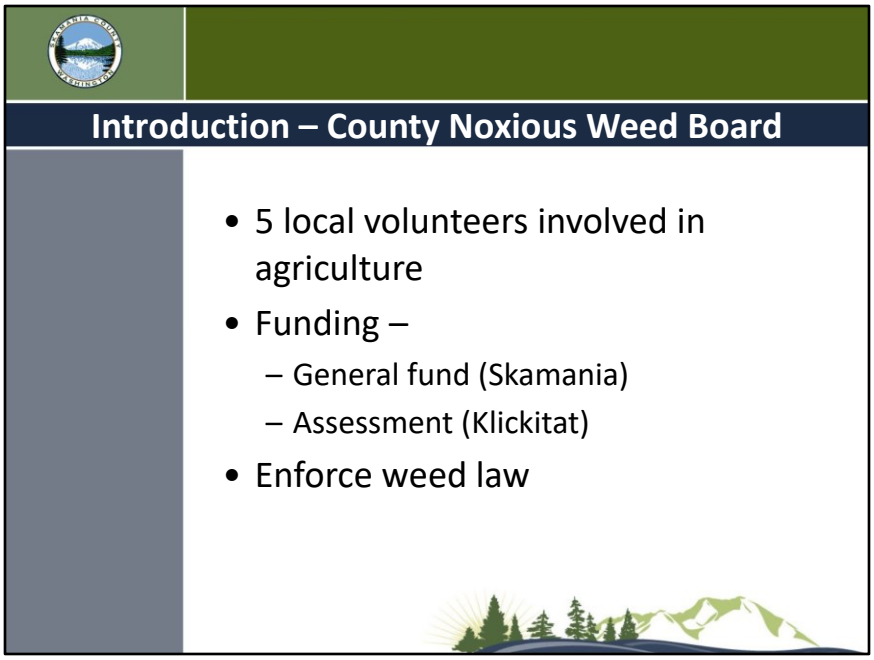
- Introduction
- Definitions
- Why do we care?
- Intro to plant biology
- Integrated Pest Management
- Common weeds
- Other invasive species
- What can we do/conclusion

Introduction - Background

- RCW 17.10
  - Establishes weed boards
  - Noxious weed list
  - Control requirements

Introduction – State Weed Board

- 12 volunteer members
- Supports 38 county weed boards & 12 weed districts
- Updates the Noxious Weed List
- Educates the public about noxious weeds
- nwcb.wa.gov



Our county board

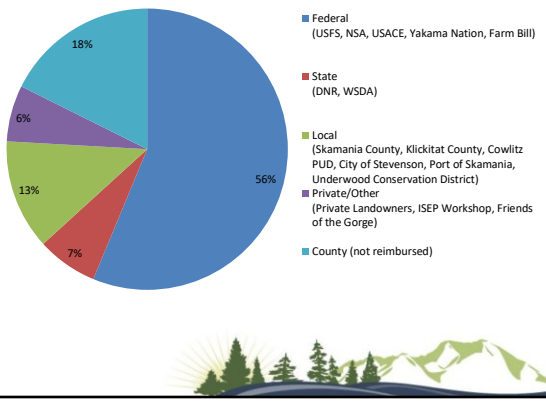
- consists of 5 members who are local volunteers, 4 of which must be involved in agriculture, and these folks help steer the direction of the local program

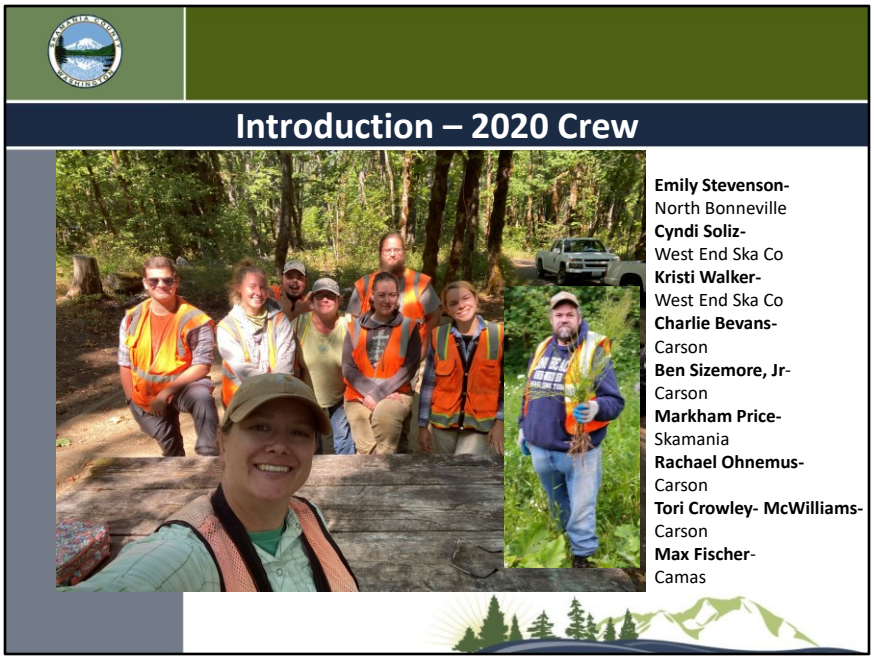
- Every county is set up a little bit differently…some are stand-alone programs, some fall under WSU ext or conservation districts, and some are part of county public works departments;

- Each county gets to decide how to fund their weeds boards:
- Some, like Skamania County, fall under the general fund for the county
- While others, like Klickitat, are funded by a tax assessment (I believe there are 26 counties who are funded this way)

- county boards are given authority to enforce the weed law

Introduction – Noxious Weed Program





Because of the agreements we have with agencies, we hire seasonal employees for the summer to execute those agreements and control noxious weeds on their lands.

Here's our crew from last season.

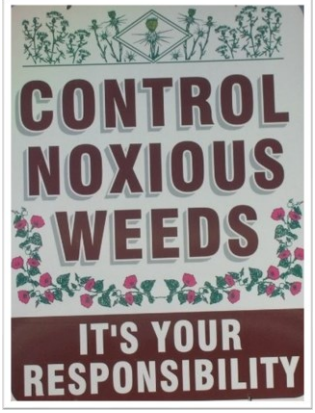
The program also

Assists private landowners with control of noxious weeds where feasible – this typically applies to:

Class A plant species – this is our top priority and highest concern b/c they have limited distribution and they pose the largest risk. There are currently five Class A species found in Skamania county.

We also get funding from the state for knotweed control on private land –something our program has been working on in both Skamania and Klickitat counties since 2004.

Introduction – Noxious Weed Board



It is also our job to educate landowners about noxious weeds and remind them of their duty or responsibility to control noxious weeds on their own properties.

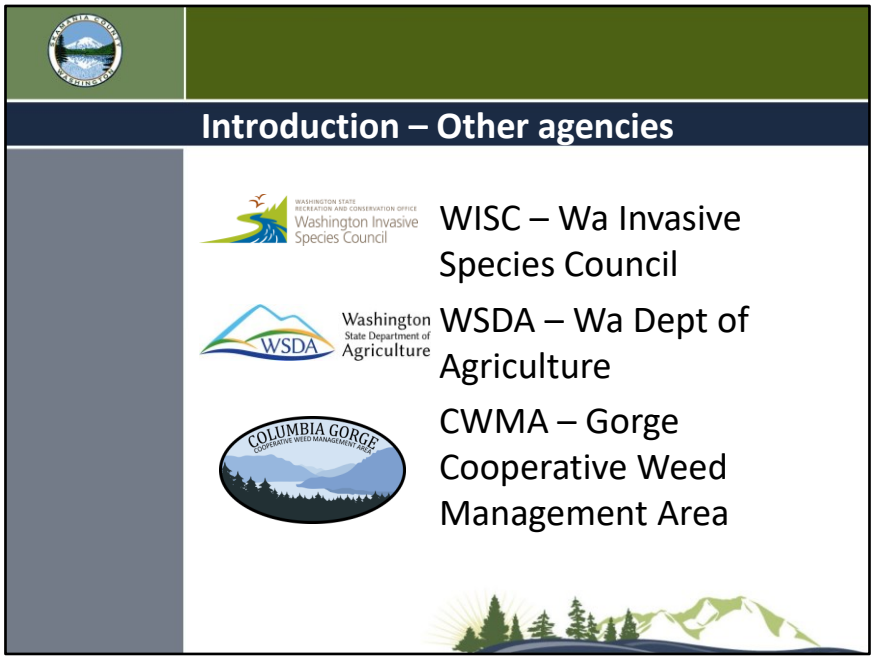
Introduction – Noxious Weed Program

- Education and outreach
  - Booth at events
  - Home surveys
  - Media

@SkamaniaNoxiousWeeds

@Skamaniawild

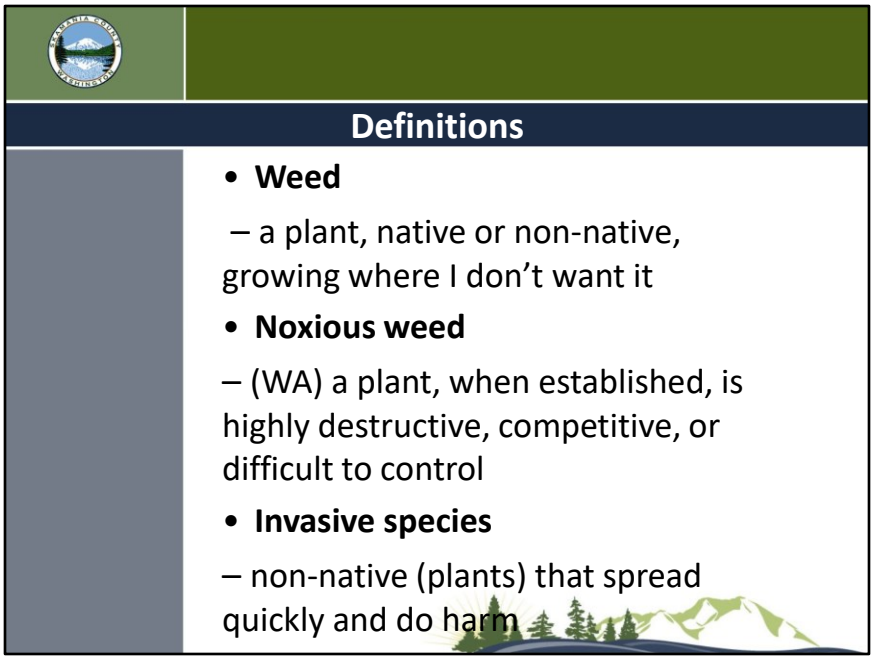
skamaniacounty.org/noxious-weeds



WISC - all taxa, not just noxious weeds –have a strong presence online thru their website/social media and even have their own app. This is where you can learn a lot more about invasive species and report anything you find.

WSDA encompasses a lot more than just invasive species but some of their programs include regulations for nurseries and quarantining of pests or funding of certain projects like spartina or knotweed. They also have a public education presence online.

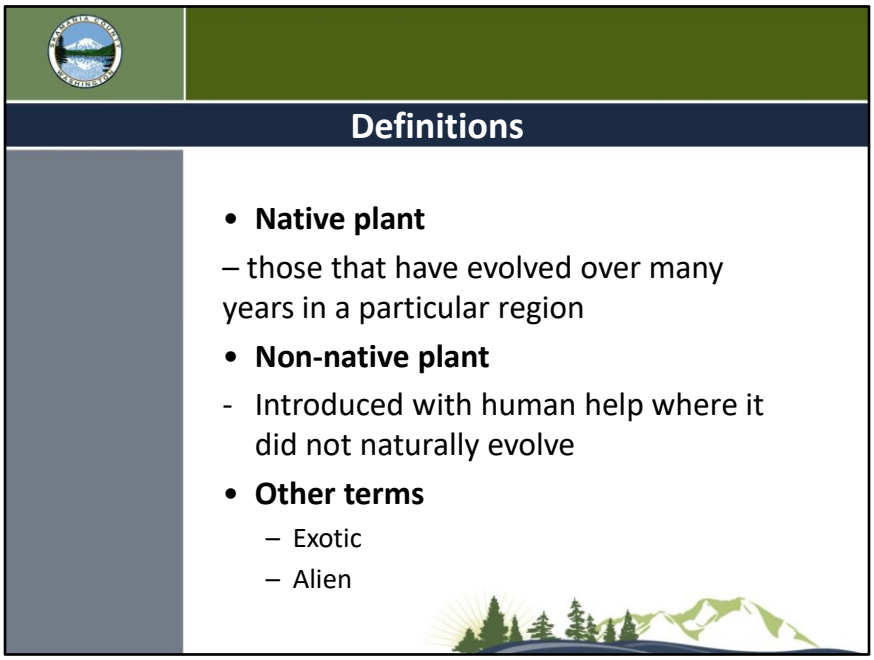
And then the cooperative weed management area in the gorge - local asset



Weed –
any plant, native or non-native, growing where you don't want it. An example would be a Douglas fir growing in your veggie garden. Doug fir is a native plant that serves a purpose in our landscape, but the veggie garden isn't the right place for it. In that instance, even though it is native, the Doug fir would be considered a weed.

What is a Noxious weed ?–
More of a legal term. There are state and federally-listed "noxious weeds" that are typically non-native plants that establish quickly and do harm to the economy, the environment, or public health (toxic).

Invasive species –
Can be a plant, animal, or pathogen that is non-native to an area, that spreads quickly and does harm. This sounds like the definition of noxious weed…all noxious weeds are considered invasive but not all invasive weeds are noxious.



Native plants refer to those that have evolved over hundreds or thousands of years with the ecosystem in a particular region. When I say native, I typically mean native to the PNW. In the US, native refers to those plants found PRIOR to European settlement. Note that some books or things you find on the internet can label a plant as native and they mean to the US, but not necessarily to the PNW. For instance, there is a plant on the noxious weed list in WA that is native to the east coast but did not evolve here and has invasive tendencies. This plant is indigobush.

Non-native plants are introduced with human help to an area or region where it did not naturally evolve. Note: Not all non-native plants are invasive.

Other terms you might see include “exotic” or “alien” species. These terms are still referring to those plants that did not evolve here.

A couple of things to keep in mind with the non-native plants is that though many of them do not and cannot reproduce or survive naturally without human help, some of them are very good at taking advantage of their surroundings and b/c they do not have natural predators to keep them in check like our native plants do, they outcompete more vulnerable species. This is what makes them invasive.

Why do we care?

- Economy –
- Invasive species cost Americans more than $137 billion annually
    - For farmers and natural resource managers such as timber managers, it Decreases their yield and impacts their income
        - Example: Recent study shows scotch broom affects the soil nutrient levels for many years and actually lowers the germination rate of Douglas fir seedlings and impacts the rate of growth of planted trees. If you are in the business of producing timber, this could really hurt your production level.
    - Other ways it can affect our economy is by causing a major disruption on our hydro-electricity systems or even salmon populations…. For example, if zebra or quagga mussels establish here, they will clog pipes and filters as well as change the ecosystems and food sources critical for native fisheries.

    - And invasive species can also affect recreational boating and fishing, hunting and hiking which would be a detriment to not only our own sanity, but to the economy as well.

Cysc4 study….soil legacy. Ingrid Parker, Sara Grove, Karen Haubensak
Scotch broom is a nitrogen-fixer that affects soil nutrients and may shift soil microbial communities to the detriment of native species.

ectomycorrhizal fungi (EMF) are deterred by N enrichment
found that DF seedlings grown in broom-invaded forest soils had lower rates of ectomycorrhizal colonization than seedlings grown in soils not invaded by Scotch broom and that the EMF communities were different. We also found that DF growth was strongly and positively correlated with the degree of EMF colonization. The soil C:N ratio in broom-invaded forest soils was significantly lower than in non-invaded soils.

Why?

Why do we care?

- Detriment to:
  - Economy
  - Human health
  - Environment

What can we do?

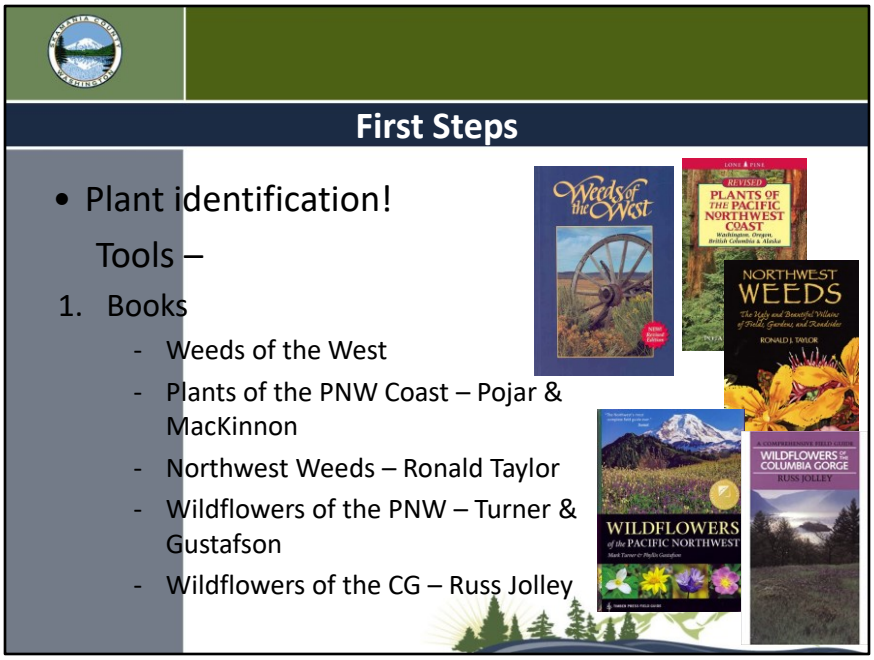
- Invasive species are

Detriment to our health

- Toxic (some fatal) to humans and livestock
- Can increase the frequency and intensity of wildfires (cysc4, cheat grass)
- Affect water quality by destabilizing soil and altering the hydrology of streams, rivers, lakes, and wetlands

- Invasive species are

Damaging to our Environment
- Alter wildlife habitat, contributing to the decline of endangered species
- Outcompete natives that are beneficial to wildlife, some of which rely solely on a particular plant (for instance the monarch butterfly that relies on milkweed as its only host source) or the Fender's blue butterfly seen here that relies on three specific species of lupine throughout its life cycle
- Upset the balance of diversity by outcompeting and creating a monoculture of plants beneficial to few



The first step in learning how to control weeds is to first positively identify the plant you are seeking to control

- Learning what plants are growing in your garden will help you understand your needs, develop goals, and set priorities. It's the first step in knowing what comes next!

- I have a couple of slides on some of my favorite resources or tools for identifying plants…
  - Some of my favorites include Weeds of the West– covers the entire western region of the US, so will include some species you might not see here and it also includes some native plants and doesn't always supply that information, so be aware of that
    - Plants of the PNW Coast – mostly native species and often includes information about how the native Americans used them (the more you get to know your native species, the easier it will be to recognize the weeds that don't belong)
    - NW Weeds by Ron Taylor - It's a little smaller than Weeds of the West and does a better job of pointing out native vs not.
    - Wildflowers of the PNW – organized by color which can help in narrowing down a plant; and it too identifies if it is native or introduced
    - Russ Jolley's book Wildflowers of the Columbia Gorge– great to have especially if you live or recreate in the gorge – specific to our area, specific locations, and timing of bloom

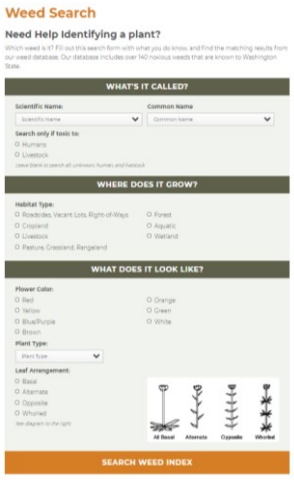
  - New book coming out by authors of Wildflowers of the PNW on just weeds (likely published in 2022)

First Steps – Plant ID

Tools Cont…

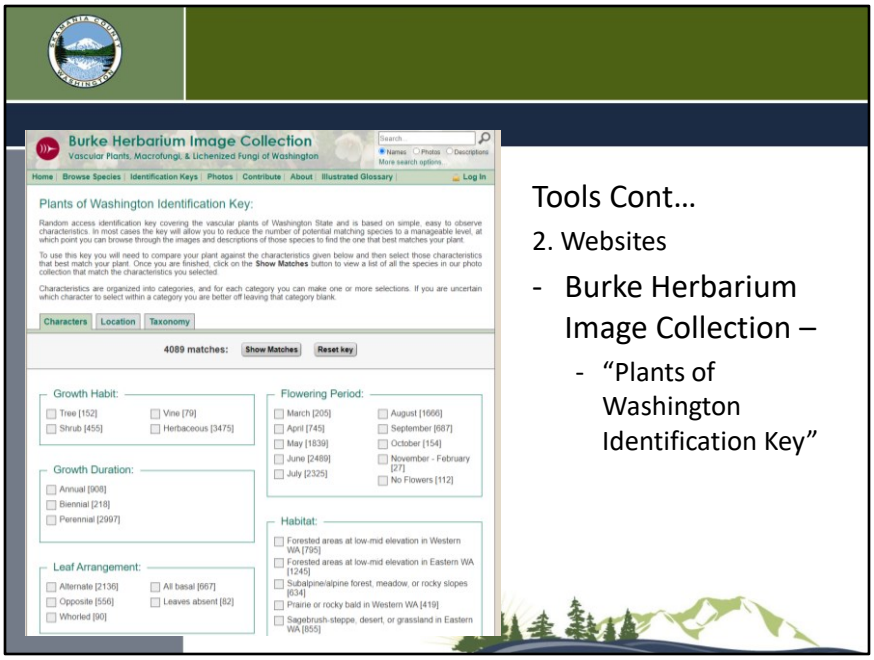
2. Websites

- WSNWCB – "Identify a Weed"
  - nwcb.wa.gov



Second tool…
There are many websites that can help you identify plants…

1st – state noxious weed board has an "identify a weed" tool that allows you to search by key characteristics – It is somewhat limited b/c it is narrowed down to noxious weeds on the list or monitor list…so if it's not on one of those lists, you won't find it here



Tools Cont…

2. Websites

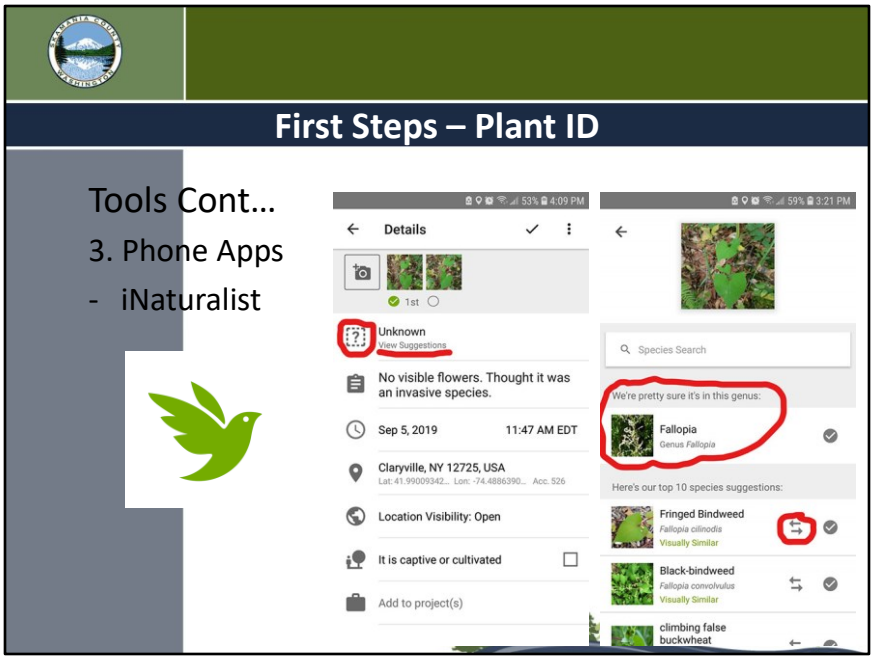
- Burke Herbarium Image Collection –
  - "Plants of Washington Identification Key"

2nd – Burke herbarium at UW. Can search by characteristics or location and there are over 4000 plants in their database.

Many other websites that can be helpful….remember, plants typically have more than one common name and some species share common names. Also, it doesn't hurt to use more than one source to see if you come up with the same answer.

there's an app for that!

Washington Wildflowers (collaboration between the Burke Herbarium at the UW, Turner and Gustafson (authors of Wildflowers of the PNW) and an app company
- free (limited number of species) or small, one-time fee you get 870 species
- let's you browse their database (click) or you can
- Search characteristics and gives you options, including a range map
- Downloaded to phone…don't need cell service to use
- Available on both android or apple platforms



there's an app for that!

iNaturalist
- All taxa
- Create an account which allows you to keep track of your observations
- Handy Feature– allows you to take a photo and if the plant (or insect) is unknown to you, you can view suggestions from iNaturalist.
- Take a good photo (or multiple photos) that shows leaves, flowers or fruit (if they are present) and the app narrows down the identification based on those features AND your location. It uses other observations nearby to increase the likelihood of a positive identification.

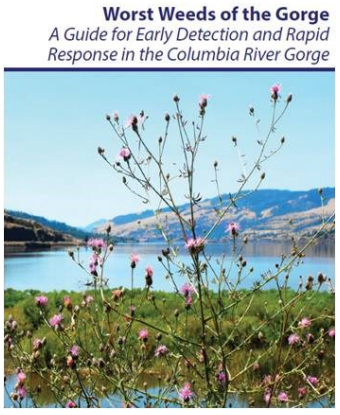
- not fool-proof. For various reasons, it cannot always give you a100% positive ID. But what it can do is give you a place to start some further research into a more confident, positive ID.

First Steps – Plant ID

Tools Cont…

3. Publications

- Worst Weeds of the Gorge

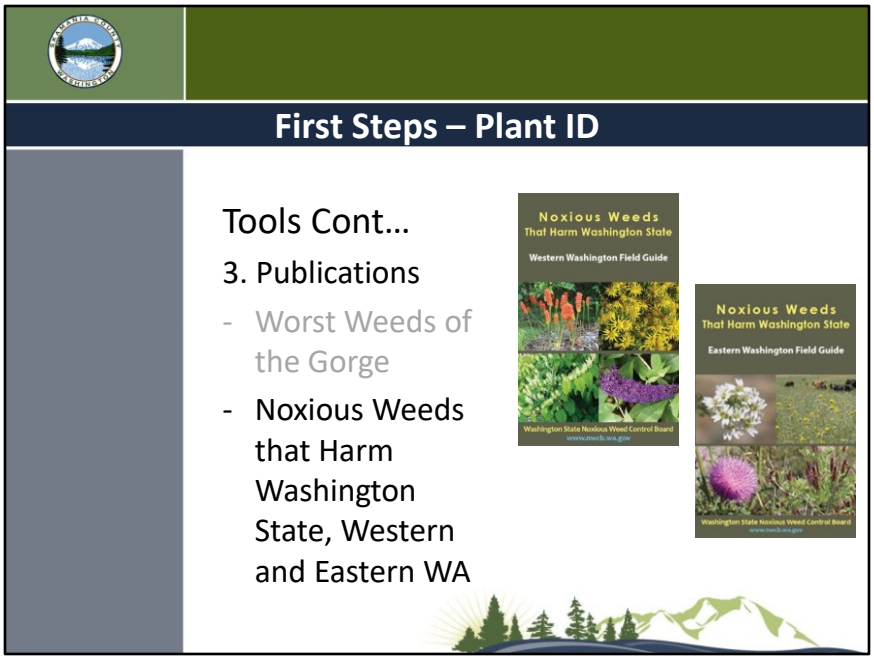


There are a number of great resources that have been published for weed ID by local agencies…

The most relevant one to our area is Worst Weeds of the Gorge which covers mostly early detection rapid response species….

There are paper books available but it is also available digitally…

If you put your camera up to the QR code there, it will take you to the website where you can download the pdf to your phone.

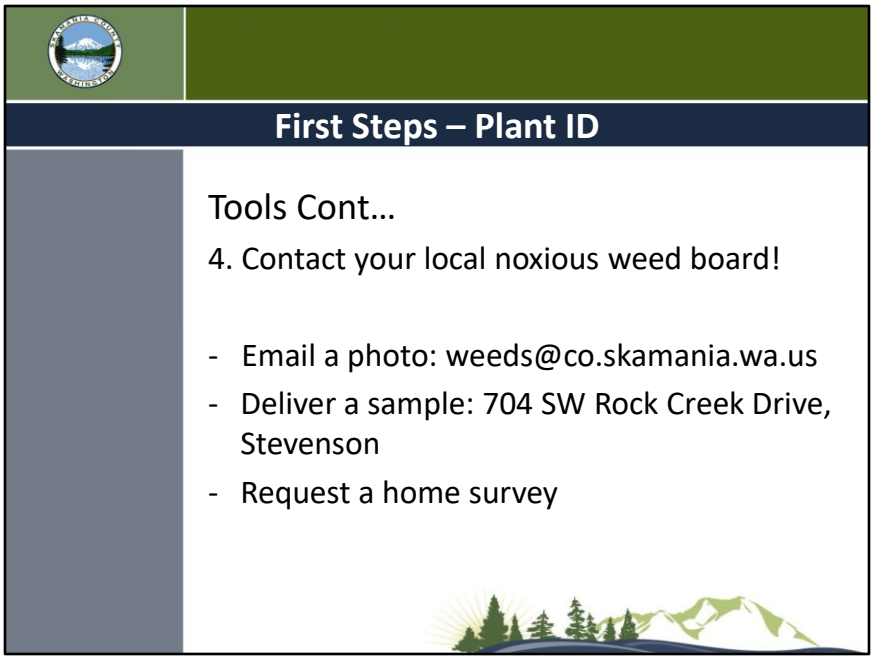


Two others that the state weed board published are divided btwn western wa and eastern wa

More common noxious weeds, organized by bloom color

We are in the transition zone, so both are relevant

BTW, you can get these publications from me in paper form or download them from the website



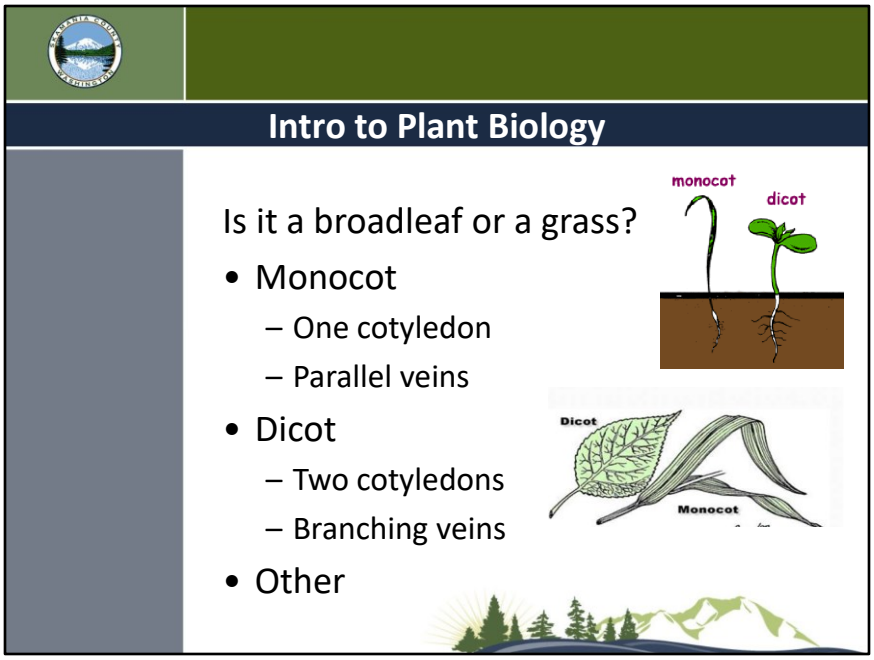
contact your local noxious weed board!

Email Photos – one or several is better
Close enough to see leaf pattern but also a pic of the entire plant is helpful, too
Also, be sure to get a photo of the flower if it is blooming

You can also bring a sample to the office…if you are going to do that, I recommend cutting the plant right before you bring it so that it's not wilty

home surveys that you can request at any time

– service we provide for free; can point out native plants as well as weeds and discuss management plans



Plant biology 101

Knowing if you have a Monocot or a Dicot will help determine what type of herbicide you need to use, should you choose that type of control

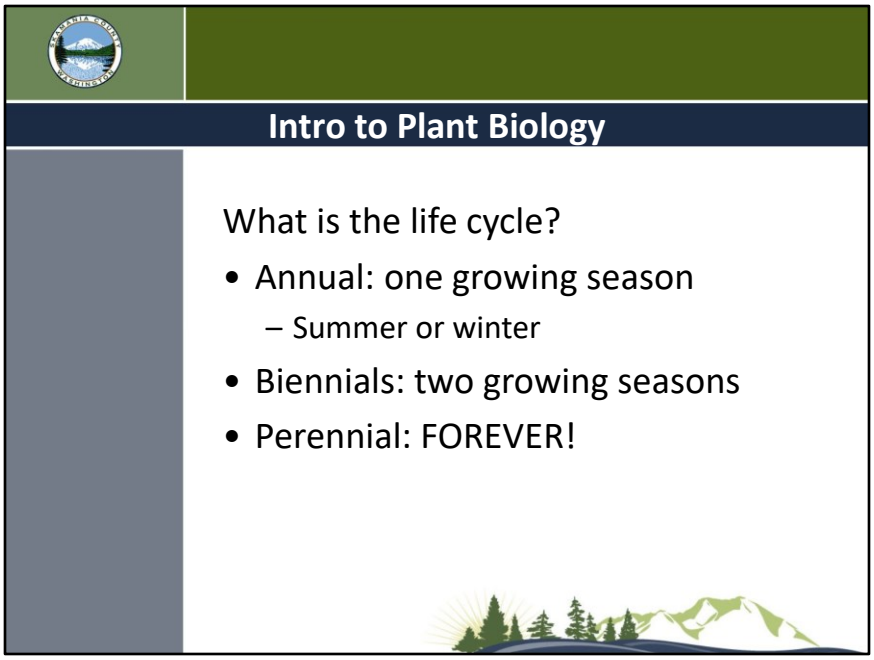
Mono means one and cot is short for cotyledon which are the first leaves to appear from a germinating seed.
Monocot leaves have parallel veins.

Some examples of monocots are Grasses, lilies, irises, orchids

A dicot has two cotyledons and the leaf veins are branching.

- Shrubs, many trees, and broad-leafed plants are examples of dicots

Others that are *neither* monocot or dicot are conifers, ferns, mosses



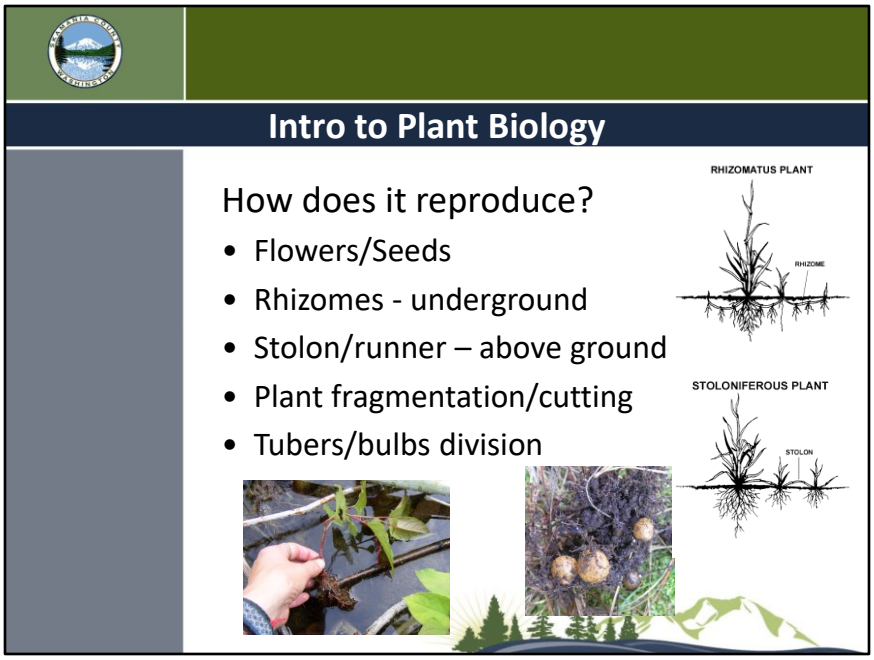
– life cycle

Knowing the life cycle of a plant will help determine the best way to control it.

An annual completes its life cycle in one season….the seeds germinate (in any season) and grow, flower, and produce seed and then die. The ONLY mechanism for spread of an annual is by seed. This is important to note b/c if you can control the plant before it sets seed, then you've controlled future generations.

A biennial plant takes two years to complete its life cycle. The first year they are often in the form of a low-growing rosette while the roots develop. The second year the plant bolts, flowers, and produces seed and then dies. The primary means of reproduction is by seed…much like an annual.

A perennial plant typically lives longer than two years. It can be an evergreen plant or herbaceous where the top of the plant can die back in the winter while the roots are alive and begin to grow in the spring. Perennials spread in multiple ways, so just controlling seed production can impact future generations but does not control the existing plant.



Figuring out how a plant reproduces is also important.

Most plants produce seed, but this isn't the primary way of reproducing for some species.

Rhizomatous and stoloniferous plants use their root systems to expand and colonize.

Rhizomes are underground plant stems that can send up lateral shoots.

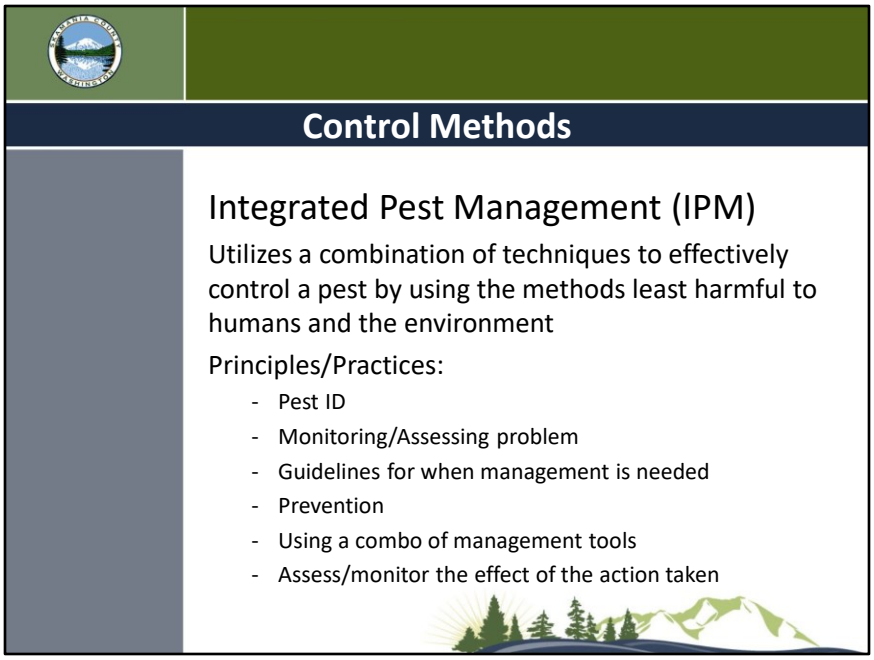
Stolons/runners are above ground stems that creep along the surface and grow a clone (strawberry)

Plant fragmentation occurs when a small piece of the plant is broken off or cut and grows new roots to starts a new plant – many house plants and aquatics species reproduce this way

Some plants have tubers or bulbs which can be split or divided to start new individuals.

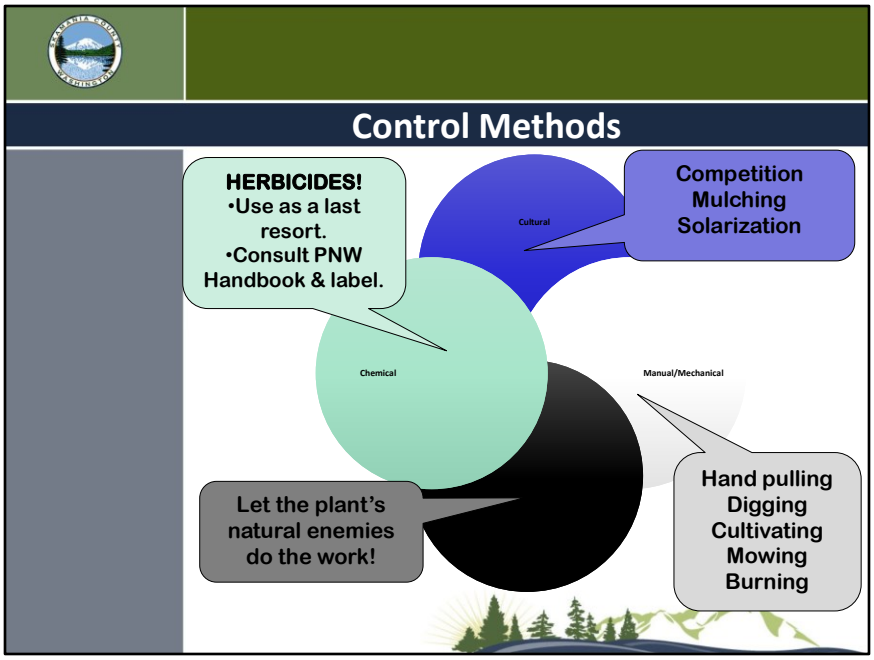
Why is this important???

Knowing the biology and life cycle of the plant and how it reproduces will help determine the most effective ways to control it.



Now that we know how to identify the plant and what to look for once it is identified, we can understand what will be an effective means of control

Int pest mgmt. or IPM is a holistic approach to preventing or dealing with a pest. Instead of just reacting to a pest problem, IPM focuses on understanding why you have the problem and utilizes multiple strategies to change the conditions allowing the pest to thrive. It also plays a key role in preventing pests in the first place.



IPM uses a combination of control methods, including

Mechanical control
Cultural control
Biocontrol
And chemical control

Proper timing of control is part of IPM as well as taking actions to prevent pests in the first place, and monitoring things along the way.

IPM will not only help you get the most bang for your buck, but it will also decrease risks to people or the environment

"controlling" vs "eradicating" - Controlling weeds typically means not letting weeds reproduce….this can be as simple as deadheading a plant to keep it from going to seed.

Eradication means getting rid of the plant completely…..not just controlling its spread.

This is important when determining what is required by law.

For manual or mechanical control in small situations, I love the Hori hori Japanese gardening knife. This is a great tool for digging and planting!

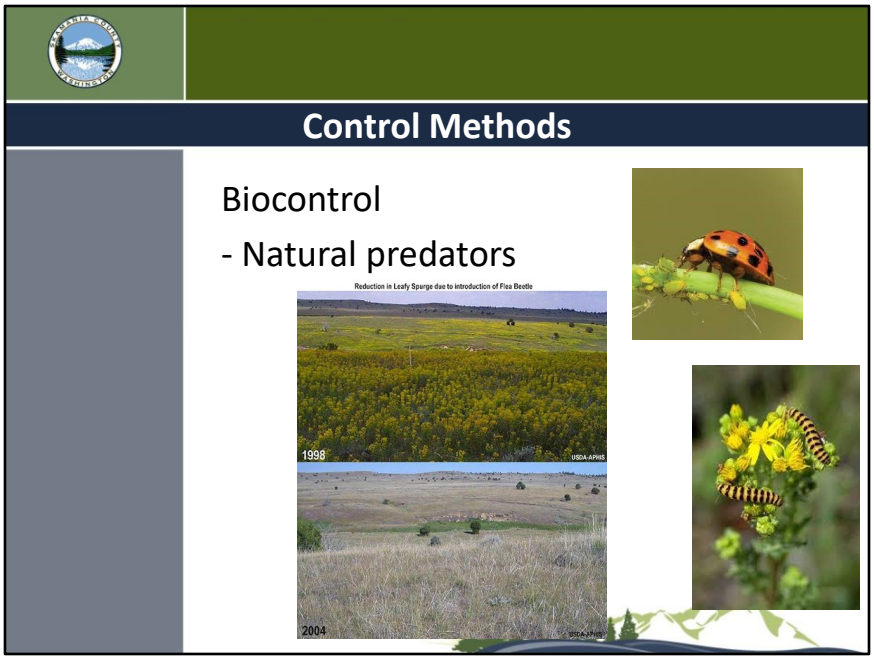
The hula hoe is great for quickly and effectively getting those young plants uprooted and doesn't require you to be on the ground.

A weed wrench is a simple tool with a long handle that is used as a lever. The teeth at the bottom wrap around the base of the plant and you pull the lever to uproot the plant.

Solarization is also an easy and effective way to control weeds before planting. By sealing off an area, you essentially cook the seeds in the soil or stimulate growth that will die quickly once germinated. Having enough moisture under the plastic to start with is key and using a clear plastic is better than black. You must be sure to trap the air/moisture, so if you get any holes in the plastic, it won't work. Downsides to this method is that you end up with a lot of plastic!

Sheet mulching or lasagna gardening is another favorite tool I utilize. By using newspaper or cardboard, you can shade out weeds or grass while also improving the soil structure and building up the organic matter content needed for healthy plants.

There is a lot of material available on the web about these methods if you are interested.



Biological control uses living organisms to control pests by predation, parasitism, or other natural mechanisms.

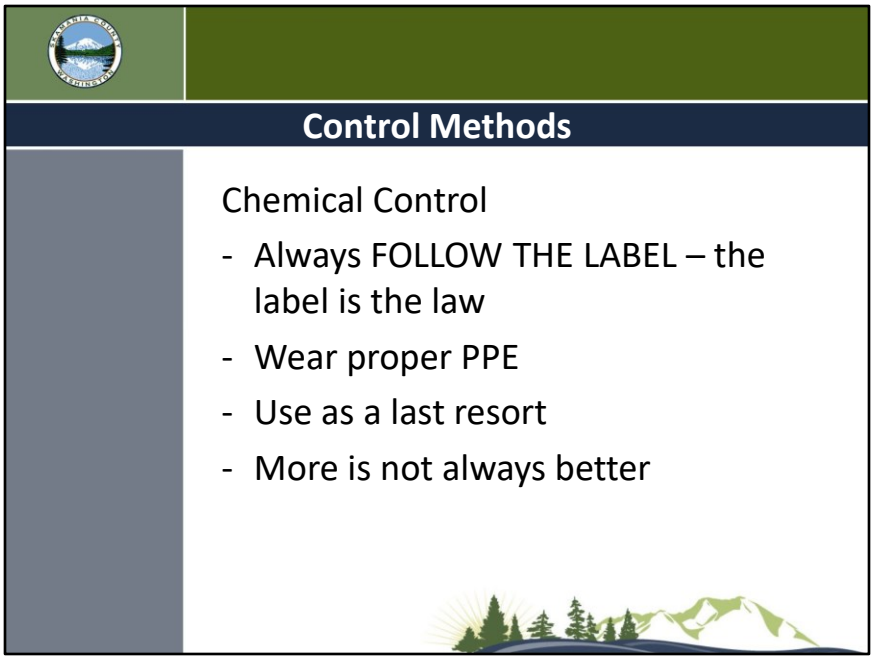
Invasive or non-native weeds lack natural predators. Scientists travel to the native range of the plant and study the predators controlling them there. Then they return to the US and study the (often times) insect or pathogen in a controlled/closed system for years…a decade or more…before releasing it. This rigorous testing ensures the predator is host-specific and will not affect any of our native species or those being grown for agricultural purposes.

One that you may be familiar with is the cinnabar moth. This moth was released in the US in the 1960's to help control tansy ragwort. It is widespread but no longer available for release b/c unfortunately it will also feed on some of our native Senecios.

There have been successes in biocontrol and one of those is with the introduction of a flea beetle that feeds on Leafy spurge. These pictures show the difference it made in about six years.

Biocontrol cannot be used in every situation. First, not all weeds have biocontrols approved for use. Also, biocontrol is used primarily for large, well-established infestations and where other control methods are not feasible.

Note: Biocontrol is a long-term management strategy where desired results are not seen for many years and it can fluctuate over time. It's never going to eradicate a problem weed but it will reduce the impact of an invasive weed to a level with which we can tolerate or manage.

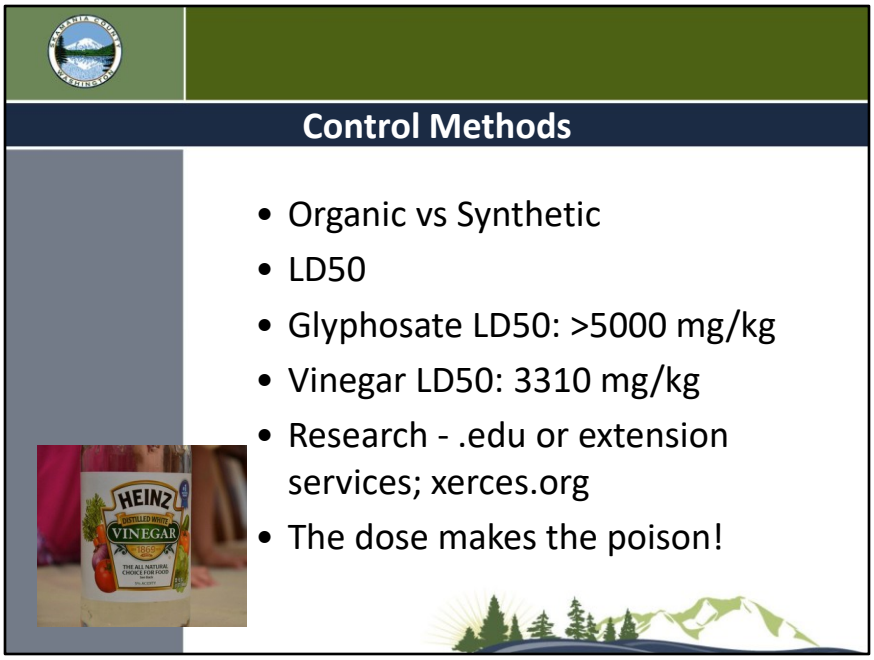


Chemical control should be used as a last resort and you should make a habit out of reading the label of the product you intend to use prior to use. The label is a legal document, full of information and so if you need help understanding anything on a label, please reach out. I'm happy to help and the National Pesticide Information Center also has a hotline you can call for help or information.

The label will tell you everything you need to know in terms of what personal protection equipment you should wear, what weeds the chemical is effective on, if it should be used with an adjuvant and also, mixing instructions with the amount that you should be using to be effective.

Keep in mind, more is not always better! Many times I have heard from landowners who put in a little extra just to be sure. But in some cases, this can actually be counterproductive. Instead of translocating to the roots, the overdose quickly burns the top off before it has a chance to work through the system.

Also, the opposite is true as well. If you use too little of the suggested rate, the plant could not completely die and could, in some cases become resistant to that particular chemical. Use the suggested rate that is written on the label.



synthetic chemicals vs organic
It's easy to think that an organic chemical is safer to use or less toxic than its synthetic counterparts. But that is not always the case.
For example, when comparing glyphosate, the active ingredient in Roundup, to Vinegar, the number one suggested home remedy for weeds we can look at the

EPA's – "toxicity" rating or LD50 – lethal dosage – or the individual dose required to kill 50% of a population of test animals – the lower the number, the more toxic the material

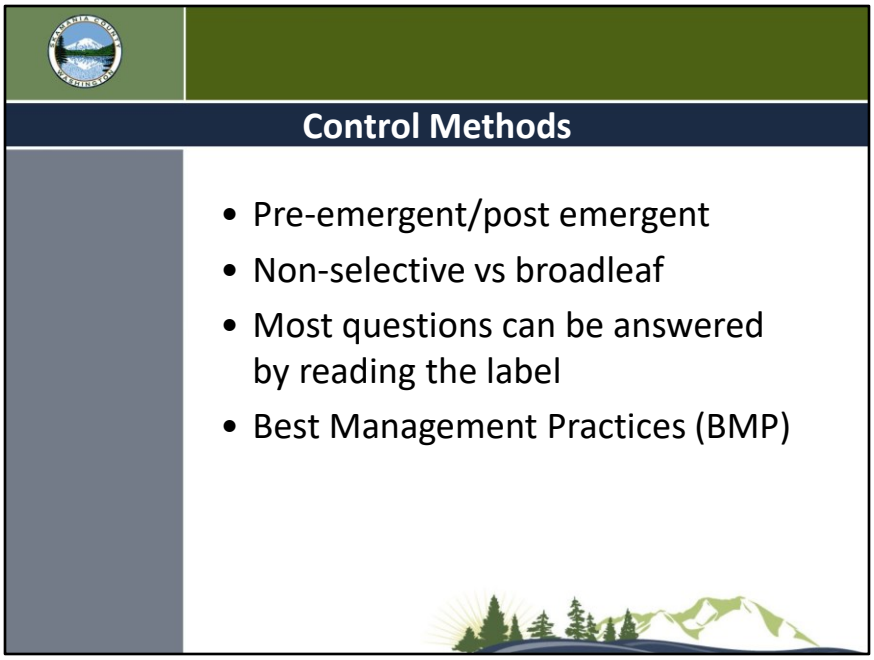
Glypho - LD50 is greater than 5000
Vinegar – 3310mg/kg
So when they tested these two on rats, vinegar is more toxic than roundup

the stuff you find at the grocery store is 5% acetic acid; but 20% is needed for weed killer – super dangerous level where you need eye protection and gloves when handling it
Also, using vinegar can change the pH of your soil. And one application does not usually kill the plant. You will need multiple applications, increasing the likelihood of changing your soil

Vinegar…not regulated for garden use; could be more toxic to pollinators and such than you would think

Do your research. And when looking online, look for articles or discussions on reputable sources like universities and extension services. There is also a great document on the xerces website about organic pesticides.

Remember: The dose makes the poison…Risk is a combo of the degree of exposure to the active ingredient and the inherent toxicology of the material. If product is used according to the label, there should be little risk in its use or your contact with it.



Other things to note about chemicals is that they come in different forms…some are used to control seeds in the soil, prohibiting them from germinating and then others are to be used on emerged plants.

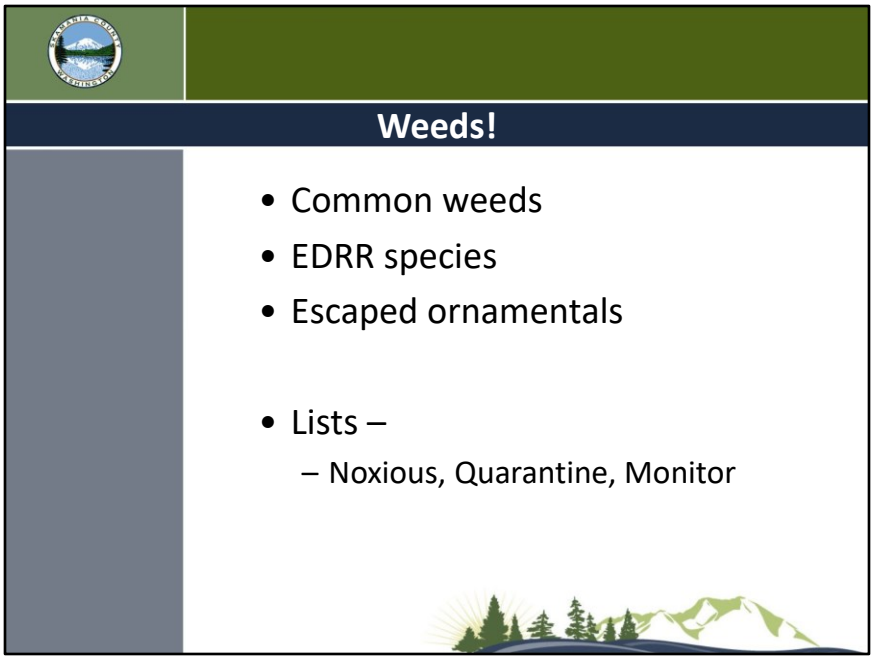
There are selective herbicides that will kill broadleaf plants but leave grass unharmed and then there are non-selective herbicides that will kill just about any plant in which it comes in contact

Most questions can be answered by reading the label.

the CWMA has put together documents on specific weeds that covers how to identify it and what control measures are most effective. These are available for use and can be found on the cwma webpage

Glyphosate – prevents plants from making certain proteins needed for growth

Triclopyr – mimicks plant growth regulators and causes rapid growth which disrupts food manufacture and translocation causing it to die



I've got the next part of the presentation broken down into three groups…..
I'll talk about common weeds we often see in our gardens or just about anywhere

Then I'll talk about some weeds that hopefully you haven't seen but should keep an eye out for…these are our early detection rapid response species.

And then I'll finish with some weeds that started out as ornamentals (or are still being sold as ornamentals) that you should avoid.

But first I want to quickly describe some state weed lists….

There are 3 classes of noxious weeds in WA state.

Class A weeds are non-native species whose distribution in WA is still limited. They are also often times extremely aggressive and hard to control. And they are our top priority

Class B noxious weeds are non-native species whose distribution is limited to portions of WA state. Often there is a weed, like scotch broom, that is ubiquitous on one side of the state and not on the other.

Class C consists of those weeds that are widespread in WA Or are of special interest to the agricultural industry.

Some of the noxious weeds are also on the quarantine list.
This list prohibits the sale or distribution of these plants or plant parts, including seeds, into or within the state of WA.

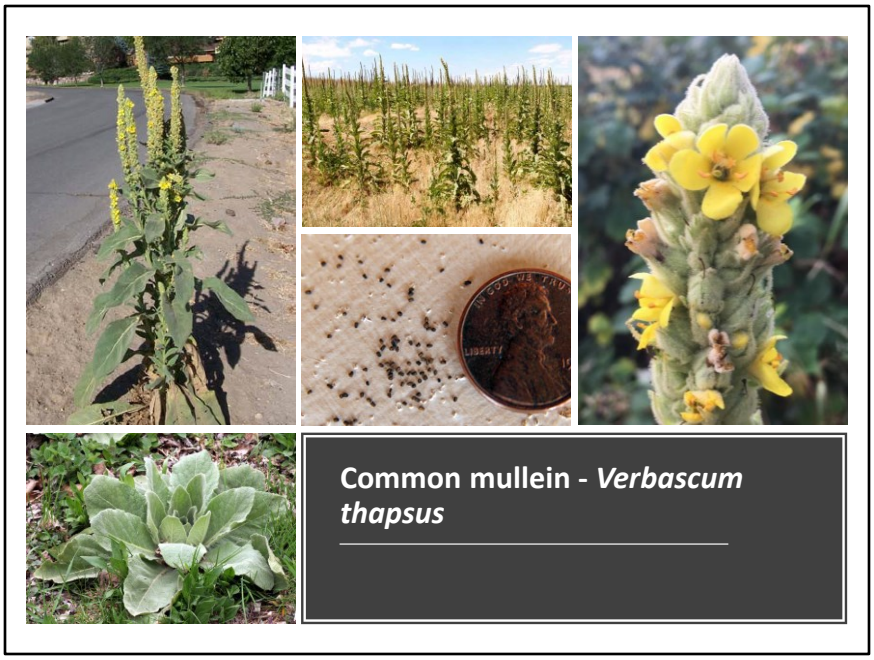
The purpose of the monitor list is to gather more information on suspect weeds as well as monitor for occurrence or spread. Anything can go on the monitor list and there are no legal or regulatory aspects of the plants on this list.

Class C noxious weed
Winter-annual, typically germinates in fall/winter
Can produce Multiple generations per year
Wind-dispersed seeds
Toxic to most mammals, including humans if ingested

Leaves are deeply lobed with toothed margins that can make it appear kind of wavy

Easily pulled or dug
Flowers can mature to produce seeds even after being weeded (so throw in garbage if flowering)….and this is a good rule to follow for all weeds….if flowers or seeds are present, discard in the garbage and not in the compost.

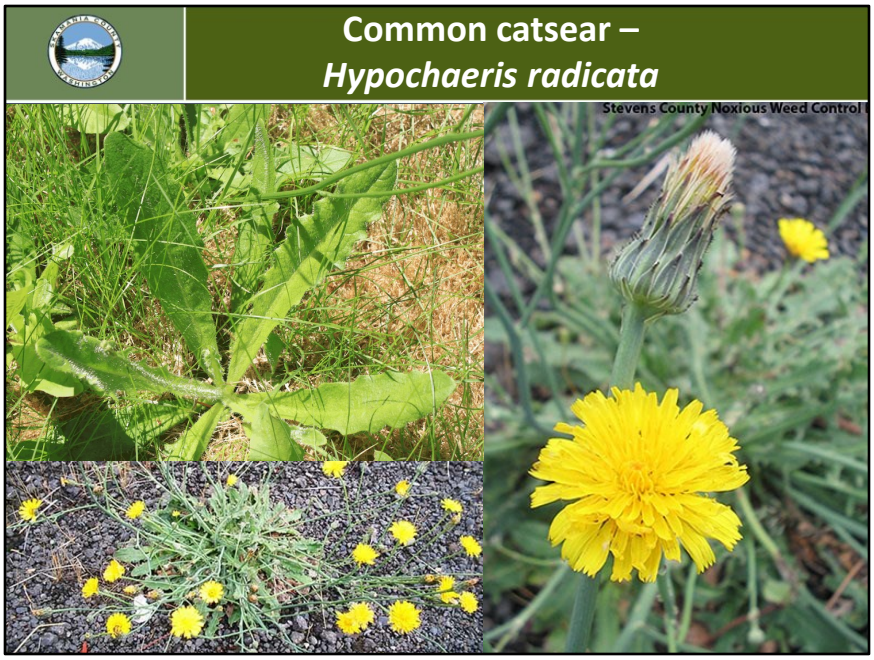
No known native lookalikes; but another senecio that looks very similar but is non-native, too



Biennial
Forms rosette in first year and then bolts, flowers, and sets seed in the second year; Seeds viable for 35+ years

Used medicinally; nature's toilet paper
Host of insect pests

Easy to pull or dig

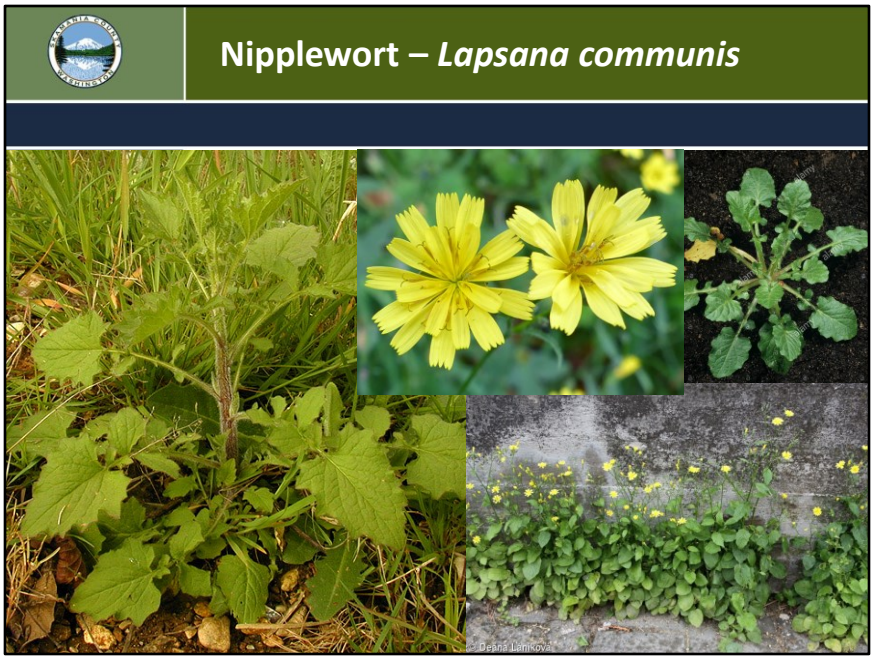


Common catsear or false dandelion
Class C b/c of its toxicity to livestock
Commonly found in lawns, pastures, and disturbed/waste areas

Perennial
Similar to common dandelion except the flowering stems branch on catsear
Leaves are not as delicate as dandelion and are hairy, not smooth
Longer stems that are typically leafless exude a milky sap

Reproduces primarily by seed

Easier to dig or pull up than dandelion



Disturbed areas, including garden beds or driveways

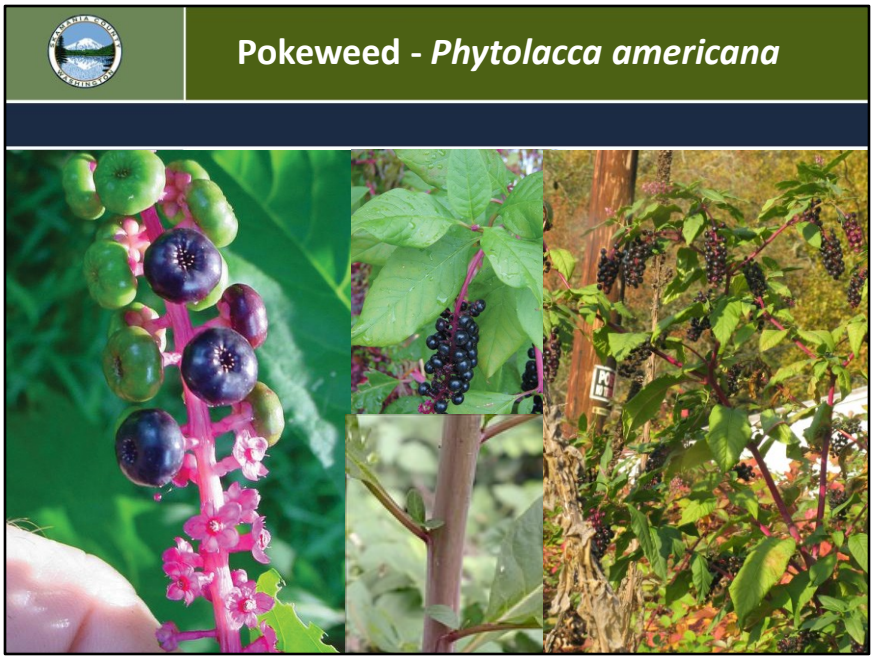
Annual so it reproduces by seed

Typically has a single, hairy stem that branches toward the top just below the yellow flowers which are about the size of a dime or penny

it is often browsed early by rabbits but multiple stems grow back and flower and set seed

Milky sap

Annual – key is to control it before it sets seed



•Widespread in Portland/Vancouver metro area, making its way into Skamania co. Have seen some near underwood
•Native to SE US but not to our area

•Perennial, 2 to 8 feet tall.
•Smooth, stout, purplish stem that branches extensively. The egg-shaped leaves on stem have smooth edges and are up to 12 inches long and 4 inches wide.

•Flowers are white or green and form in elongated clusters that hang from branches in early summer.

•Those flowers then turn into hanging clusters of berries that turn a deep purple when mature**.** Fruits present mid-summer to late fall.

All plant parts are toxic to humans and livestock, though cooking it can make it edible

Manual digging can be effective, but it has an extensive taproot (which can grow to the size of a bowling ball) and so doing it early in the season or when the plant is small is advised **Resprouts can occur from any remaining root fragments so those should be discarded in the trash, not the compost. Stems, flowers, and leaves can be composted**

At a minimum, cut berry clusters and discard in trash

Multiple years of treatment to eradicate

Biennial
•First year is a rosette before it grows 3’-7’ tall in the second year
•Bracts at base of flowerheads are spine tipped
•Flowers purple
•Stems are spiny winged
•Upper leaf surface is rough with bristle like spines while undersides are covered with white woolly hairs.

•Easiest way to control bull thistle is to take a shovel to the base of the plant and sever the root

Canada thistle:

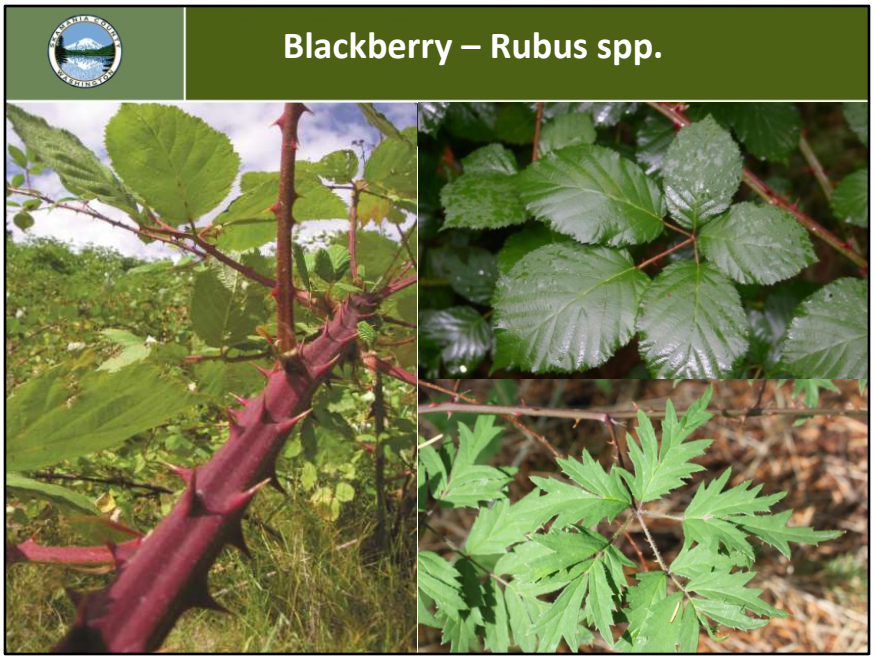
creeping perennial
•Grows 2’-5’ tall
•Pink flowers are clustered
•Stems are not winged but grooved.
•Reproduces by seed and rhizome
As you can see in the photo, the roots go very deep, making it impossible to control via digging or pulling. When the root is broken, it will regrow, usually with two+ plants.

Best to use a systemic herbicide, something that will get down to the root system.

Aminopyralid is my favorite chemical to use on Canada thistle, but glyphosate will also do the job if it is not in a lawn or pasture setting.

BMP for this species

Also, there are many thistles that are native to our area that often get misidentified for invasive ones. The xerces society has a great document on their website about native thistles to refer to.



Blackberry is probably one we are all aware of but maybe a couple of things that you did not know is that there are two different invasive species and a native one!

Himalayan /Armenian – most common and ubiquitous species and can be identified by its palmately compound leaf structure seen in the top right photo
The other invasive blackberry is the Cutleaf variety that has a deeply divided and lobed leaf structure.

Both are class c noxious weeds

Both are sprawling, robust perennial shrubs
Arching canes
Root at tips
Create Impenetrable thickets

You can control small infestations by pulling or digging the roots or
Repeated mowing also works for controlling blackberry - and the repeated mowing means throughout the growing season
Long-term grazing – goats can also be effective and I've heard pigs can help control regrowth by grubbing out the root balls

Please note that if you have large thickets that you want to mow, please do so in late summer, fall or, winter to avoid nesting birds (Feb – July)

Combo of mowing and herbicide works well…mowing first cuts down on the amount of herbicide that is needed. You must wait a few weeks after the mowing before before applying an herbicide. We've had better luck treating in the fall after the first fall rains but before frost. The plant is naturally sending sugars back to its root system to be stored for the following season and so the herbicide is more effective at killing the plant at that time.

BMP

Native!

Daintier but still hardy
Low growing – does not form the large, overarching canes (trip hazard!)

Slender trailing stems
Densely covered in small prickles or thorns
Often stems are covered in white powder that can be rubbed off (as shown in the left photo)

Native bees love to visit the flowers
And although the fruit is smaller than the invasive one, I think it has more flavor.

Class B required for control in Skamania County

Perennial, woody shrub
Pea family

Seeds are viable for 80+ years and are toxic to livestock/wildlife
Increases wildfire risk – it forms dense thickets; burns readily due to oils within the plant
Allelopathic, which means the roots release chemicals into the soil that inhibit germination of seeds from other plants…and this enables it to dominate the site

There are other brooms on the weed list, but they are not common in Skamania/Klickitat co

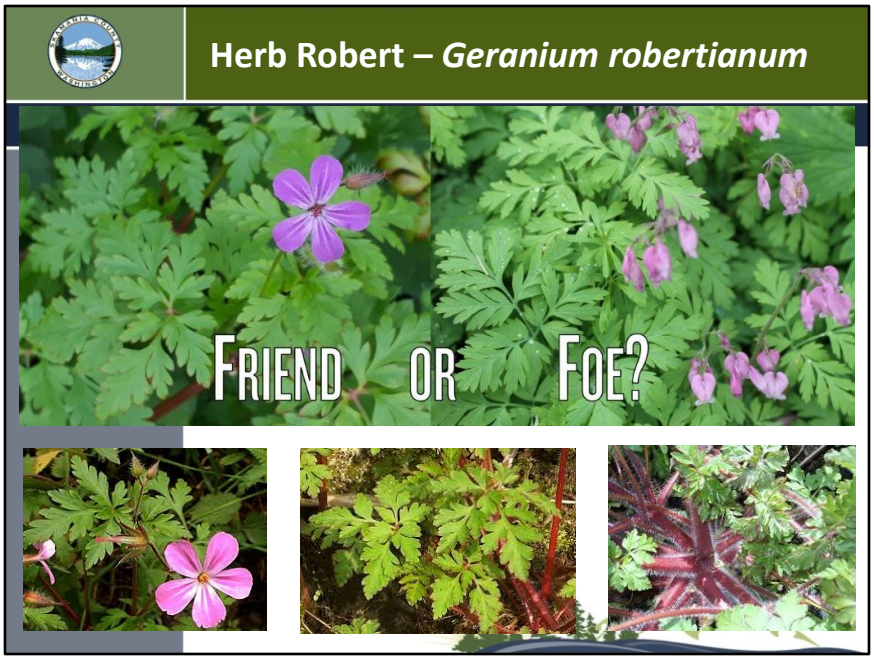
It is possible to hand pull or dig small plants…but try to minimize soil disturbance

Repeated mowing sometimes works and I have heard of some success with cutting plants at the base near the soil but this has been pretty random with some plants being controlled while others just regrow

Herbicide is often needed for larger infestation like the one you see on the bottom left. Herbicides should be used when the plant is NOT in flower in order to avoid harming bees that may be visiting the flowers.

There is a Biocontrol for scotch broom – it is a seed weevil that doesn't kill the existing plant but reduces amount of seed produced which limits future generations

BMP



Aka stinky bob is a Class B

This geranium is described as both a winter AND a spring annual OR a biennial. I've seen this plant blooming year round, which is one of the reasons it is so hard to control.

Another not-so-great thing about this plant is that it can grow in both sun and shade and it's highly adaptable to just about any situation….it's happy growing under a cool, moist forest canopy or on a hot, dry rocky outcrop. It really does not have too many limitations except that we don't see it on the east side of the state as much.

But b/c it's tolerant to shady conditions, herb Robert is a serious threat to our west side forests. It outcompetes our wonderful forest wildflowers and it provides little to our wildlife friends.

There is a native plant that has been mistaken for herb Robert….seen in the top right photo (bleeding heart). The foliage does look similar, but there are some key differences. For one, the geranium has red, hairy stems while the bleeding heart stems are a pale green or almost white and are hairless.

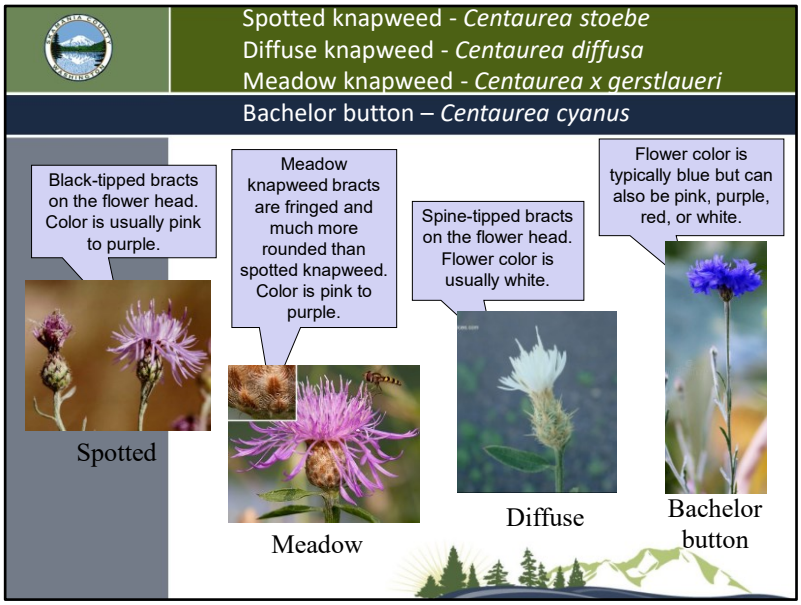
If it's blooming, the flowers are very different…the bleeding heart flower does resemble a heart and does not have the typical petals that the geranium has.

Also, the geranium is shallow rooted where the perennial bleeding heart spreads by rhizomes and a cluster of plants tend to all be connected.

One of the most telling factors is the smell. When crushed, the geranium has a pungent odor whereas the bleeding heart does not.

If you have a small infestation (or a lot of time on your hands) you can easily control it by hand pulling. The key to controlling herb Robert is to control it before it goes to seed and maintain that control until you have exhausted the seedbank.

Herbicides, especially non-selective ones, are also effective. As with hand pulling, you may have to treat geranium a couple of times a year and for multiple years to get it under control.



Generally, knapweeds pose a threat to pastures, meadows, and rangelands. They have little value as forage for wildlife and livestock, they decrease plant diversity and wildlife habitat, and they increase soil erosion and wildfire risk.

There are several different species of knapweeds that are a concern in WA, but I've included those that are frequently an issue in our area.

The first three species you see here are classified as Class B noxious weeds. The fourth species, bachelor button, is not currently a noxious weed but is included on the monitor list. I included this species b/c I want you to be aware of it. This flower, largely naturalized in the eastern gorge, is NOT native to our area. It is very often included in those "wildflower" seed packets you can find at just about any store and it was more than likely introduced that way. It quickly spread away from the original intended garden and now grows along many of the roadsides and natural areas in the eastern gorge. (same goes for the California poppy – I'm not sure that it was originally found in the gorge prior to the arrival of settlers.)

Though knapweeds do often provide a good source of pollen and nectar for pollinators, their presence can lead to a decrease in our native plants and the diversity that wildlife need. So the detriments of knapweeds do outweigh the benefits and therefore are required to be controlled.

If you want to control bachelor button, that one is a fairly easy to pull annual. If you can control the seed, then you can control the spread of bachelor button.

Unfortunately, for the spotted and diffuse knapweeds, these are one of those weeds that may be an annual or biennial in its native range, but b/c of the conditions here, it can turn into a perennial. They both have a single, large taproot, so they can still be pulled…but often times if you break it off at the crown, the plant will grow back. This is one of the reasons why mowing is not a preferred control method. Mowing can reduce the amount of seed that is produced, but the plant, much like a dandelion, will grow back shorter and still flower and produce seed.

Meadow knapweed is a perennial that has a larger, spreading root system that reproduces when it is cut or broken at the crown. Digging is a little tougher b/c of the root system but can be done.

There are biocontrols for knapweeds, so if you have a large infestation this may be an option.

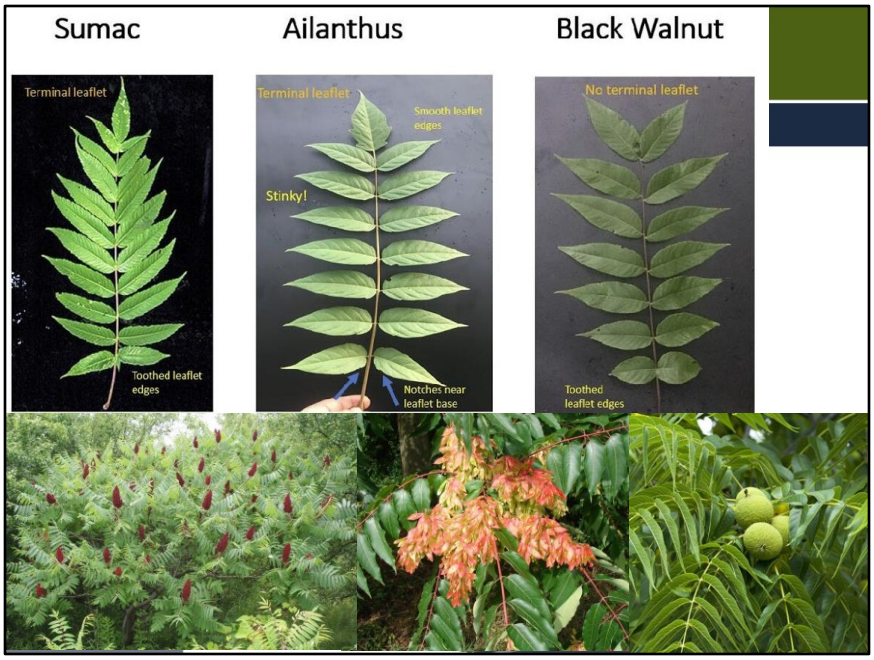
Tree of heaven is an introduced deciduous tree species growing up to 80 feet tall and six feet in diameter. It produces a long tap root and suckers freely when cut, making it difficult to control. Creeping roots may extend out to 50 feet in all directions.

Leaves are pinnately compound, meaning they have leaflets attached on each side of a central stem. Leaflets have mostly smooth edges with one to two protruding bumps at the base called glandular teeth.

Male and female flowers form in terminal clusters on separate trees.

In late summer through autumn, tree of heaven produces large clusters of papery wings (samaras), each with a single central seed. The samaras vary from greenish-yellow to red-brown and are often vibrantly colored in the fall.

Another identifying feature is the v-shaped leaf scars on stems



Tree of Heaven can be easily confused with other trees that have compound leaves with many leaflets, such as sumac or walnut. The leaf edges of the look-alikes typically have teeth or serrations, while those of tree of heaven are smooth.

Control of tree of heaven is not easy….if you cut it, it will grow back vigorously and produce multiple trees. An herbicide is needed to kill the root system.

This is one that we also have a BMP for.

Tree of Heaven is a Class C noxious weed but has recently moved up in the priority list b/c of this guy…the spotted lanternfly.

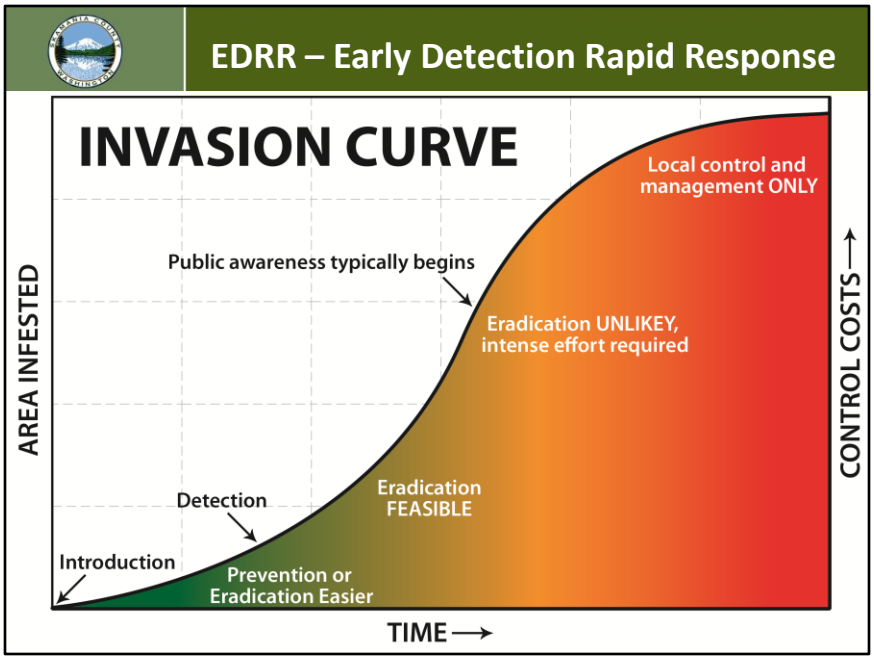
This insect, native to Asia, feeds on a wide variety of plants, including just about everything we grow in wa state like apples, cherries, grapes, and hops. In Pennsylvania, where it was first detected in the US, it has decimated vineyards where it has killed well-established grape vines. Large populations also generate a lot of honeydew excretions which can promote mold growth and also attract other insects.

It's favorite host plant, as you might have guessed, is the tree of heaven.

The spotted lanternfly has not yet been found alive in Wa or OR, though there were a couple of dead specimens that were found in a nursery shipment in Oregon last year. With all of the shipping and movement within the US, this pest will likely make its way to the PNW by humans and so it's just a matter of time.

What can you do?

Keep an eye out for this colorful insect. If you see it, report it.
Also, if you or someone you know has the tree of heaven…remove it.
And spread the word! You can find more information about the SLF on the WISC webpage and others….please share on your social media accounts and with your friends and neighbors!



EDRR or early detection rapid response species

These species' distributions are limited in the state and preventing new infestations and eradicating existing ones are still possible.

The graph shows the correlation between the size of an infestation and the feasibility of control or eradication over time.

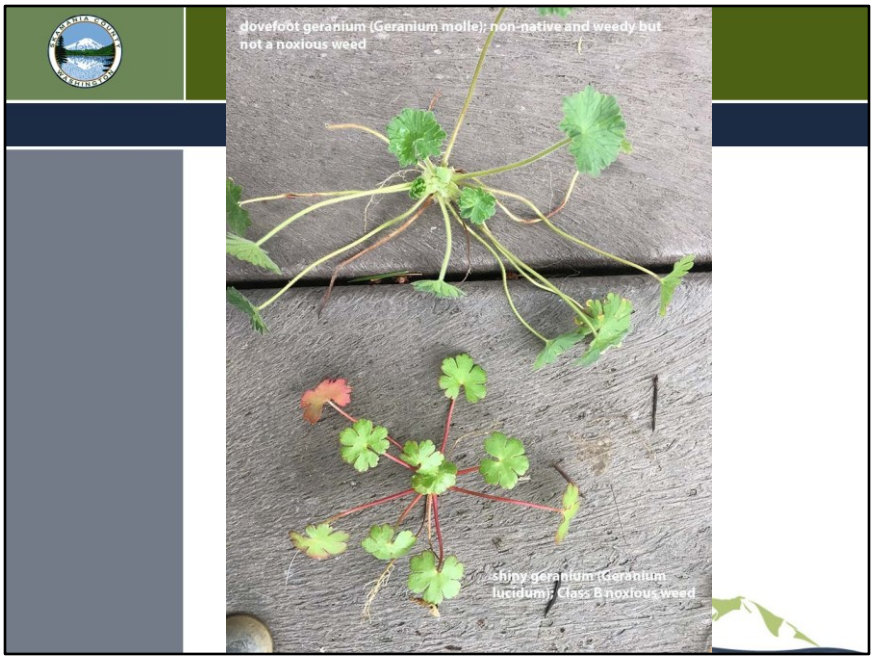
Detecting and responding to new infestations early has the lowest impact and is the most cost-effective way to address the problem of invasive plants, short of preventing the problem in the first place.

•Class B noxious weed is still considered an EDRR species in Skamania and Klickitat counties, but unfortunately it has become too widespread in places to our west, like the Portland/Vancouver metro area. B/c of its highly aggressive manner, we are doing everything we can to keep it under control here. And this is one we definitely need your help on.

•Low-growing, annual that typically germinates in the fall
•Shiny green, round to kidney-shaped leaves that grow on red, hairless stems. At the end of the summer, leaves become red and waxy.
•It blooms from early spring to as late as July.
Small, pink to purple flowers with five petals grow in pairs on little stems. Sepals around the base of the flower are keeled with noticeable cross-ribs, a key identification trait. (seen in the lower right corner)

This shallow-rooted plant spreads by a forcefully ejected seed, helping it spread up as well as out from parent plants. With this method, it quickly dominates the landscape.

It's easy to hand-pull but can quickly be too much if you don't get it early. You must follow up on control several times a year and for multiple years.



Herb Robert resembles the common dovefoot geranium which is a non-native plant typically found in lawns. Dovefoot is much hairier and does not have red stems.

Class B noxious weed that is widespread in parts of the state, including Klickitat County, but it still relatively limited in Skamania.

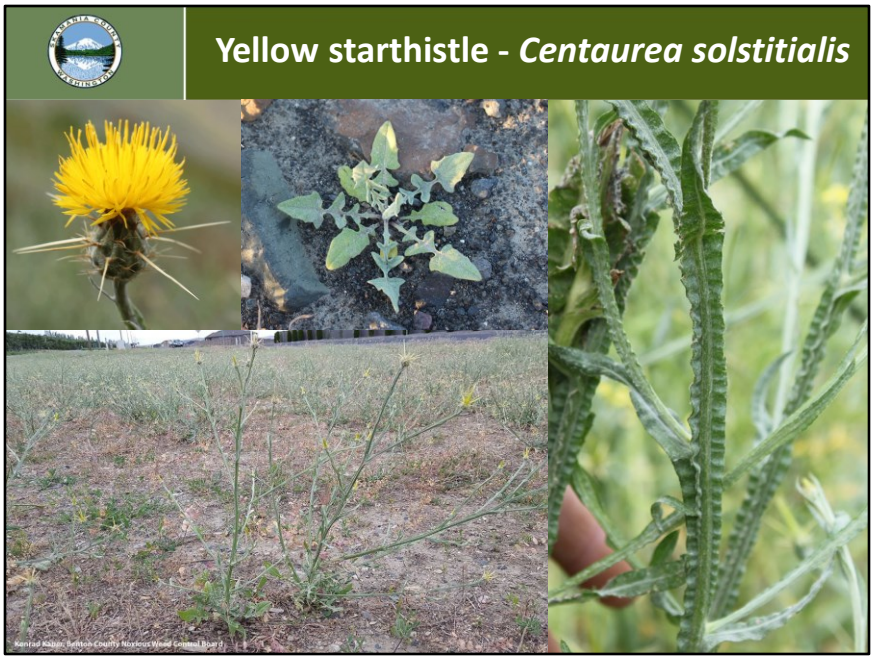
This perennial grows 1 to 5 feet tall and is a huge threat to rangelands, pastures, and just about anywhere. It currently can be found growing along roadsides in Skamania, especially on the east end where we have seen it on Hwy 14 and up Cook Underwood.

•Sharply lobed, hairless leaves form a basal rosette (similar to dandelion) that withers as the flower stem develops. Other leaves on the stem are narrow and inconspicuous.
•Coarse, downward-pointing, brown hairs on the lower 4 to 6 inches of the stem is a key identifying trait.

•Yellow flower heads 3/4 inch in diameter are produced near the ends of stems, either individually or in groups of 2 to 5.
• Blooms July to September.
Seeds are numerous and have fine bristles that aid in dispersal by wind.
Rush skeletonweed reproduces by seed and root fragments. It has a large taproot, up to seven feet long, which makes controlling it by pulling or digging almost impossible since it can resprout from anything that breaks off.

There are biocontrol agents for rush skeletonweed, but so far we have not seen a lot of success with them.

If you think you have or have seen rush skeletonweed in Skamania county, please contact us immediately.



•Class B that has invaded millions of acres in the west. It decreases forage for livestock and wildlife and it causes chewing disease in horses.

•Annual or biennial; spreads by seed.
•Grows 1 to 4 feet tall. Rigid stems are extensively branched. Foliage may be dull green to gray and they are covered in woolly hairs.

•It starts out as a rosette with deeply lobed leaves

•Yellow flowerheads have sharp spines around 1 inch long that surround the base.

•There is another starthistle which looks similar but the flower is purple.

YST is a lot more prevalent in Klickitat County, but we are starting to see it spread into eastern Skamania in the Underwood area. If you have seen this plant, please let us know so we can get it under control before it spreads much more.

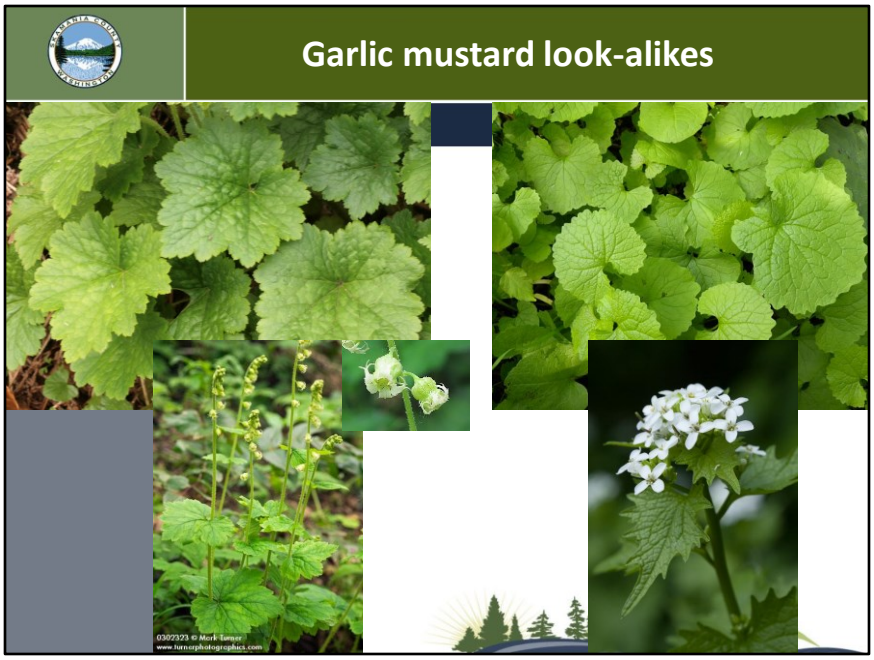
•Class A noxious weed. This is one we've been dealing with in the NW for about 15 years now. Its distribution is still relatively limited in WA but can be found on both the east side and the west side of the state, growing in our wet forest understory or along a creek in our arid eastern counties.

•It is edible, so it was first introduced from settlers on the east coast. But it is illegal to grow it in WA, so don't get any ideas ☺

•Biennial or winter annual. Rosettes form in the fall or by late spring in first year, blooms April to June second year. Typically 1 to 3 feet tall, but it is not uncommon to see a plant only an inch tall or up to 5 feet.
• Distinct "S" or "L"-shaped curve at top of root.
•Basal leaves are kidney shaped and the stem leaves are more triangular.
•It has small, white 4 petaled flowers that are able to self-pollinate. It produces many seeds that easily spread via anything that mud sticks to, including boots and tread. Another identifying characteristic is the pungent garlic odor when leaves are crushed.

It is an extremely aggressive plant that produces a lot of seed that remains viable for at least 8 years.

It also changes the composition of a plant community by exuding chemicals that disrupt plant growth and certain plant-mycorrhizal fungi connections…this is known as allelopathy. It makes it much easier for the plant to dominate a site and quickly spread out of control.



There are a couple of look alikes for garlic mustard.

The one that is most commonly mistaken for garlic mustard is our native saxifrage…or fringe cup. The way to tell the difference is the stems and leaves on the fringe cup are hairy whereas they are smooth on the garlic mustard.
the flowers are also quite different.

the other plant that sometimes gets confused with garlic mustard is nipplewort. This is an annual weed that can be quite prolific if you have it but it doesn't form a rosette, is quite hairy, and has a yellow flower instead of white.

Class B that forms dense colonies that exclude native vegetation. Though it can grow anywhere, it poses the biggest threat to our riparian areas.

There are several different species that are invasive in WA but all are very similar. Knotweed is a perennial with an extensive root system, that forms dense clumps and spreads by long, creeping rhizomes.

Stout, hollow stems are reddish-brown to green, with slightly swollen nodes and they resemble bamboo.

Dies back in winter, but the tall, dead, brown stems often persist.

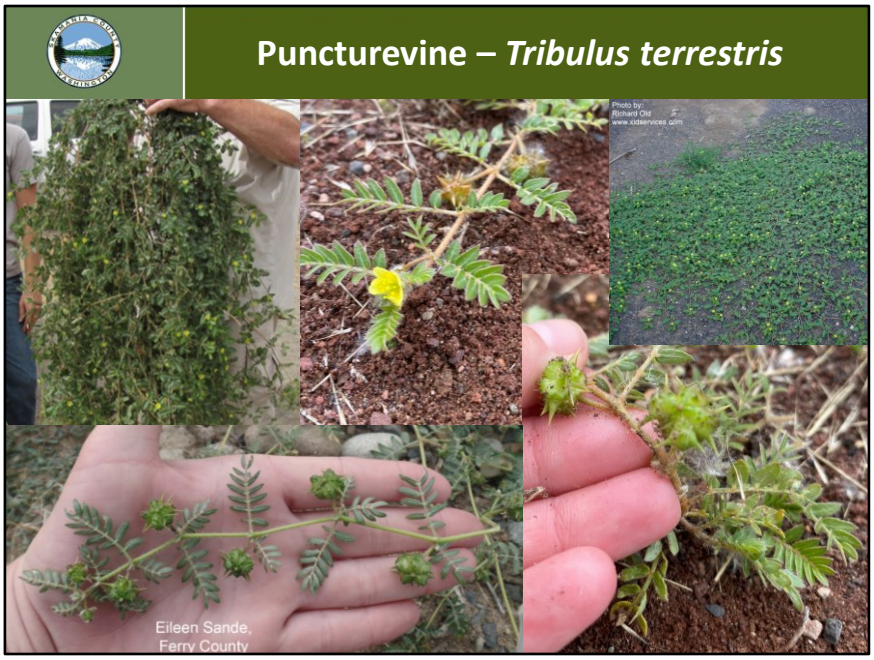
Large, heart-shaped leaves on short stalks which are hairless. The Himalayan species has longer, slender leaves.

Flowers: Small, cream-colored, and they grow in plume-like clusters in leaf axils and at stem tips. Blooms late summer through early fall.

Tiny stem and root fragments can easily regenerate into new infestation which is why it has become such an issue along our waterways. Natural flow and flood waters transport those plant fragments downstream to new areas where a new infestation becomes established.

Bc of its large, extensive root system it is extremely difficult to kill. Unless it's a very small infestation, it's almost impossible to dig up. This is one that requires the use of herbicide to control and eradicate.

We have had a knotweed eradication project going since 2004 in Skamania and Klickitat counties. We receive funding from the state specifically for knotweed control. We are able to work with all landowners to safely and effectively control knotweed infestations so if you have knotweed, this is one we have funding for and can help with.



Aka goatheads

Class B that is fairly widespread across the western United States, including WA, but is limited on the west side of the state.

In 2019, it was discovered growing at the ball fields in Home Valley.

This plant is toxic but also has nasty, sharp spines on its seed burrs that can cause damage to animals and people and can even puncture bicycle tires! This plant has had such a negative impact on the west, there is even an entire festival in Boise dedicated to education and outreach about it. Boise Goathead Fest

PV is a summer annual, germinating when the soils have warmed. It doesn't take long for the yellow flowers to turn into the spiny burrs and if it is left unchecked, it just continues to grow and germinate throughout the summer.

If infestations are small, it is fairly easy to control….b/c it's an annual, hand pulling or digging is effective. The key to being successful is to follow up often. With the infestation at the ballpark, we visited the site every 2-3 weeks throughout the growing season to get the newly germinated plants.

If plants go untreated, seeds are spread very easily via shoes, tires, or anything that walks on top of it.

Again, if you are in Skamania County, or anywhere west of Klickitat, and see puncturevine, please report it. This is definitely not one we want to get away from us.

•Butterfly bush is a Class B and is on the quarantine list, although there are "sterile" cultivars that are an exception to this rule. Those that are considered sterile produce less than 2% viable seed.

•A deciduous shrub, reaching 15 feet tall.
•Flowers have 4 petals and are commonly purple with an orange center and appear in showy flower spikes. Cultivars can be pink, orange, and white.
•Leaves are typically long and narrow and are "lance-shaped." They are green to blue–gray above and whitish on the under side due to fuzzy hairs.

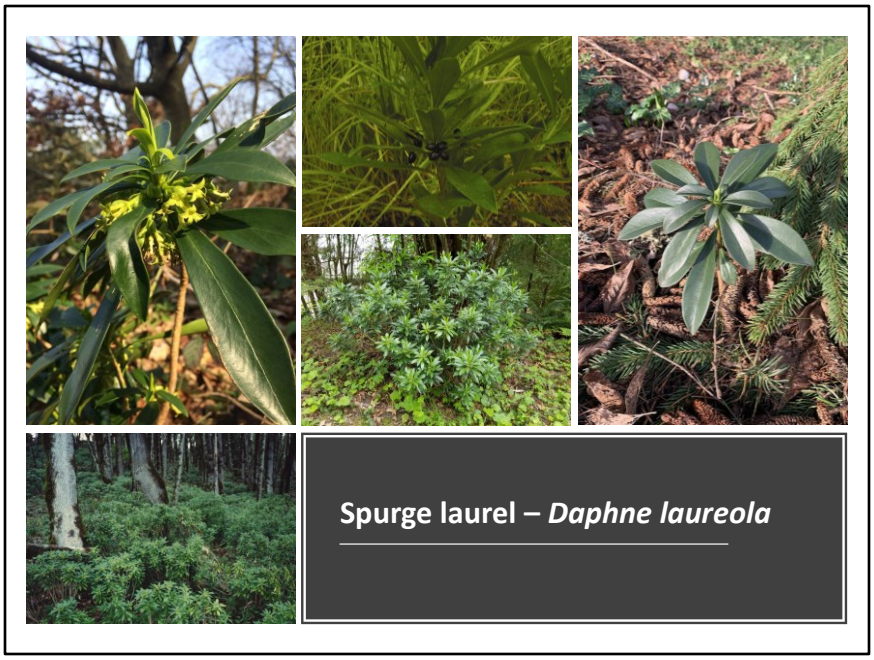
Though butterfly bush is often planted in yards and gardens, it has escaped and become an issue along roads, railroads, and most problematic in our streams and rivers. It primarily reproduces by seed, which can easily be carried downstream by water.

This plant could easily have been in my next section where I will talk about ornamentals that have escaped, but I included in the EDRR section b/c it is such a high priority for us in Skamania County. We currently have a large infestation we are dealing with on a creek near Beacon Rock and unfortunately this infestation was out of control before we could do anything about it. It is going to take a lot of work (and money) to restore this creek and so we are eager to find it on other creeks sooner if we can.

Many people love butterfly bush b/c it's pretty and the pollinators do like them. But butterfly bush is NOT a host plant for any pollinators and so it does not provide the same amount of benefit as a native plant would.

At this point, I am not requiring anyone to completely eliminate butterfly bush in their yard. However, this could change if we find that it is a source for an infestation downstream. I do ask that you, at a minimum, dead head the flowers and keep it from spreading seed, ESPECIALLY if you live near a waterway. But even if YOU don't live near the water, your neighbor's neighbor's neighbor may, and they could end up with an infestation that started from your own house. So I would HIGHLY recommend replacing the butterfly bush with something more beneficial to wildlife like a ceanothus or maybe a Pacific ninebark.

As far as controlling butterfly bush, small plants can be hand pulled or dug. Cutting plants back to the ground will not control it….it can regrow in a short amount of time. If you have a large shrub or tree, you must first cut it and then paint the stump with an herbicide in order to kill the root system.



•Class B noxious weed. This is another one that is actually an escaped ornamental but I left it under the EDRR section b/c of its priority in Skamania County.

•Evergreen, shade tolerant shrub growing to 4 feet tall.
•This shrub resembles rhododendron but the flowers are much different.

•Spurge laurel has small, fragrant, inconspicuous, yellow-green flowers that appear in clusters at the base of leaves in winter…January to February. Moth pollinated

•Leaves are spirally arranged and abundant at shoot tips. They are narrowly oval, smooth, dark green, and shiny on the top, lighter in color underneath.
•Egg-shaped, fleshy berries containing one seed start out green and ripen to black in early summer

All parts of this plant are toxic.

This plant started out as an ornamental and escaped to nearby forests. Birds eat the fruit and then fly away, depositing the seeds elsewhere on the landscape, making it really difficult to find the extent of an infestation.

Spurge laurel is a problem in Skamania County, primarily between Stevenson and Bonneville Dam, though we have found smaller infestations further west. Years ago it was planted on Thunder Island in Cascade Locks and the birds spread it to surrounding forests from there.

If plants are small, they can easily be hand pulled or dug with a shovel. (Please keep in mind that all parts of this plant are toxic, so I recommend wearing gloves when dealing with spurge laurel.) Larger infestations, like the one we are dealing with around the Bridge of the Gods, are harder to control. A general herbicide application is tricky b/c of the thick, waxy coating. We have had good success with basal stem treatments conducted in the late winter. Regardless, if you have this plant or have seen it, please let us know so we can help get it under control.

The last few weeds I want to discuss are escaped ornamentals.

These invasive plants started out in our nurseries and were innocently planted in our gardens before we knew of the damage they would cause.

A widely known example of this is kudzu in the south. That plant wasted no time invading forests and completely overtaking houses!

Class B and quarantine list

Herbaceous annual

It has smooth and hairless stems that are also hollow, with a pinkish tinge

It can range from 3 – 10 feet tall

Flowers vary in color from white to all shades of pink or purple and the shape resembles the British policeman's helmet hence the common name

Extremely invasive in moist, wet areas. It was originally introduced and sold as an ornamental but quickly escaped home gardens.

Easy to control – very shallow root system that pulls easily. But follow up within the same season is advised as well as for a few years following the initial treatment.

This is one that could have been under the EDRR list as well…we have started to see it pop up along roads and water ways on the west side of the county. If you see this plant, please report it!

Creeping jenny is not listed as a noxious weed but is on the monitor list

This plant is still widely sold today….it is very common in hanging baskets or sold as a fast-growing groundcover.

It seems delicate but a recent discovery of it in North Bonneville along Hamilton Creek shows it competes quite well with reed canary grass, it can grow on land or in water, and my own personal experience with it is that it is very difficult to kill! It can go without water for months and can handle freezing temperatures. The infestation along Hamilton Creek, likely started from yard debris dumping, is quite extensive and alarming.

Bc this plant is still widespread and very popular and it is not regulated, I cannot tell anyone not to purchase or plant creeping jenny. However, I am highly encouraging you to choose another ground cover or, if you must have it, keep it contained in a pot or basket and dispose of it properly when you are done with it. And also, please do not share it!

There is a native that has a similar structure to creeping jenny and that is Yerba Buena or Oregon-tea. The scientific name for that is Clinopodium douglasii. It's a perennial herb that has a wonderful smell and one difference is that it has teeth on its leaves where creeping jenny does not. It's also spreads much less.

Yellow archangel – *Lamiastrium galeobdolon*

Class B noxious weed…originally introduced as an ornamental but quickly escaped home gardens. This plant is on the state quarantine list.

Evergreen or semi-evergreen, fast-growing perennial groundcover that is in the mint family. It can grow in sun or shade.

It is mostly trailing but does grow upright when growing over other plants

Leaves are typically variegated with silver-gray markings and grow on trailing, 4-sided stems.

Yellow flowers, like many other flowering plants in the mint family, are two lipped with a hood on top.

Stems can root at leaf nodes and other places along the stem in wet soil. It can also reproduce by seed as well as stem fragments.

Yellow archangel cont…

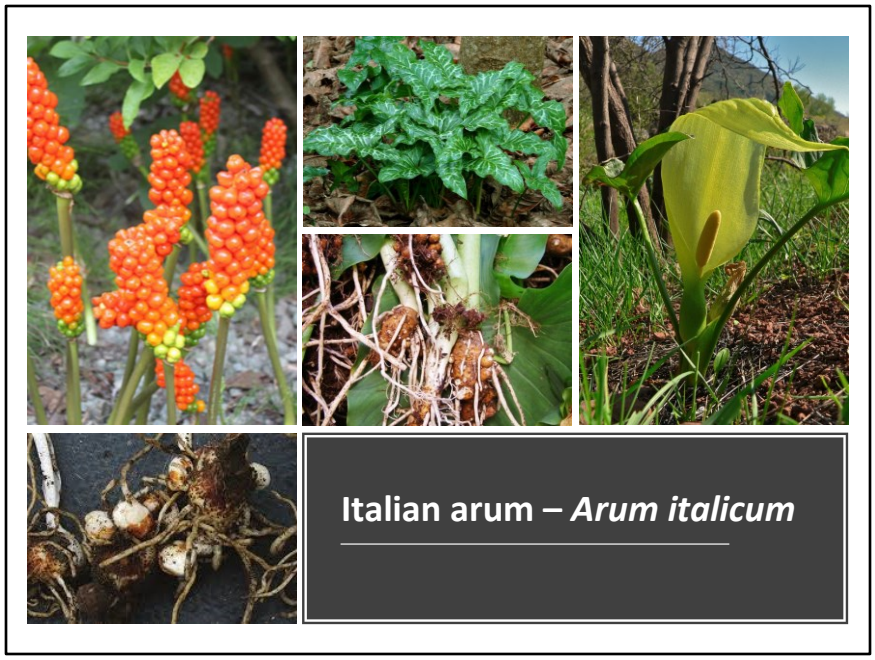
This is another one of those weeds that started out in hanging baskets and when dumped illegally, spread in natural areas.

This plant can be managed by hand pulling, although it is a little tougher than ivy. Root and stem fragments easily break off and can re-sprout.

Cutting is not advised.

Also, the plants must be completely dried out before composting or the safest bet is to discard in the garbage….otherwise they will re-root if left on the ground

Herbicide can be effective and if you would like to know more about that, please contact me for more information



Herbaceous perennial that was introduced as an ornamental and quickly escaped gardens. Bc of its toxicity, ability to easily establish in riparian habitats, and bc it is so hard to control, Italian arum is designated as a Class C nox weed in Wa.

An attractive plant, it often has variegated, arrow-shaped leaves that emerge in the fall and in mild winters, persist until spring. It blooms from about April – June in what is called a spathe and spadix flower (photo in top right). These flowers apparently give off a displeasing odor.

Typically the leaves begin to die back as the fruit ripens, leaving just spikes of green to red berries.

Italian arum grows from tubers and develops "daughter tubers" during the growing season. The following year the daughter tubers break off and form new plants. b/c of this, digging this plant or disturbing the soil increases the spread. Often infestations of arum are found in natural areas where yard debris has been dumped. We recently had a landowner contact us after he had received "free" dirt from someone who was building a house. He was trying to fill in a low spot and unfortunately that dirt contained thousands of tubers that formed new plants. The other unfortunate thing about Italian arum is that it is very difficult to control.

Manual removal can be effective if you carefully dig up a plant, removing all soil, tubers, and roots and discarding them in the garbage. This must be done for several years until no plants emerge.

Larger infestations require multiple years of an herbicide treatment. We are currently conducting trials of our own and have found that imazapyr is reducing the population.

Keep in mind…Italian arum is a Monocot – so broad leaf herbicides will not be effective. Use non-selective herbicides like glyphosate or imazapyr.

Class B

•Hairless perennial that emerges early in the season…January to February and spreads aggressively by tubers, bulbils (which are small, bulblike structures that grow on its stem) and seed.

•It is really kind of a cute plant, especially when blooming but one of the unfortunate sides of this thing is that when it dies back after it blooms, there is nothing remaining but bare ground. It doesn't take long for this plant to expand and outcompete any grass or other ephemeral (lasting for a short time) spring flowers. I have seen entire yards in pdx of this plant and from about April until January it is nothing but dirt.

•Plants grow up to about 12 inches tall in a mounded rosette and there are both basal and stem leaves that are medium to dark green and kidney or heart shaped.

•Solitary yellow flowers bloom at stem tips and are about 1 inch wide

Lesser celandine spreads easily as the tubers and bulbils are easily dislodged and spread by moving soil, mowing and flooding.
Often this plant ends up in natural areas where a homeowner has dumped their yard debris without knowing the consequences.

May be confused with Yellow Marsh Marigold. Yellow Marsh Marigold does not have tuberous roots and does not produce bulbils. It also blooms much later, in July or August.

how weeds are spread:

Some plants have sticky seeds that grab onto clothing or animal fur and are transported to new areas that way.

Some plants have wind born seeds or seeds that float and move in water

And many plants have seeds that simply get picked up with dirt or mud on anything it clings to….like boots, tires, tools, and even mowers or brush control devices.

Aquatic species can be moved via boats, trailers, ballast systems, or by dumping live bait or unwanted fish aquariums.

And those plants that reproduce via fragments or rhizomes are often times spread by illegal or irresponsible yard debris dumping

Weeds can spread a number of ways but there are things you can do to minimize that spread…

And decrease the risk of invasive species

First, Prevent the spread of noxious weeds and other invasives by:

- cleaning boots, dogs, and bicycle tires…..you should do this both before and after heading out on the trail….you don't want to introduce anything new or take anything home with you.
- Same goes for equipment….Clean earth-moving equipment, mowers and tools before and after visiting the work site COME CLEAN LEAVE CLEAN
- Use weed-free gravel, hay or mulch when possible
- Clean, drain, and dry your boat, waders, and gear between water sources…not only for plants but pathogens and invertebrates that may be so small they can't be seen with the naked eye
- Don't let exotic pets loose in the wild or dump yard debris near natural areas
- Buy firewood locally
- If you see something that doesn't belong or looks out of place, – report it! SEE SOMETHING, SAY SOMETHING

Avoid "wildflower" seed mixes or buying seeds or plants over the internet

If you can, avoid non-native groundcovers, & those plants labeled "robust" or "easily spreads"

Choose native plants to:

- use less water and fertilizer over time
- Provide habitat and food for wildlife
- Encourage beneficial insects that will decrease the need for pesticides

- So again….
    - BE A YARD GUARD - Know what you are buying
        - buy locally sourced native plants
    - SEE SOMETHING SAY SOMETHING - Report weeds
    - COME CLEAN LEAVE CLEAN give invasive species the brush off

A couple of other things you can do to encourage the good or beneficials in your garden, especially for pollinators:

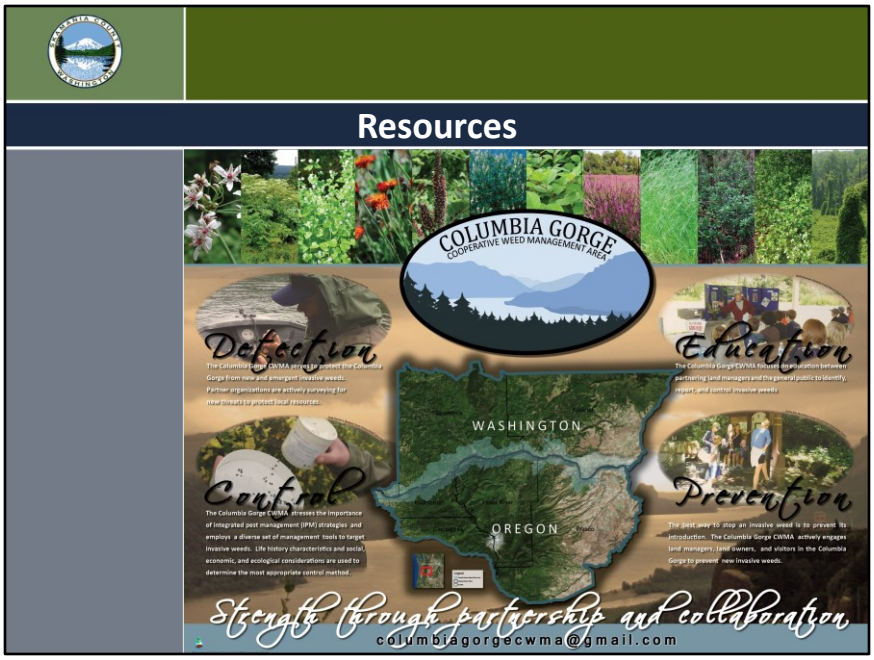
- Avoid buying flowers/plants treated with neonicotinoids which can harm bees and other insects – it should say right on the label or tag if it's been treated…
- Choose a variety of flowers, especially single flowers (as opposed to double-flowered varieties that do not provide pollen) and try to cover three seasons with blooms (Feb – Oct)
- Choose native plants!
- Many of our native pollinators nest in the ground…so leave bare ground for them to use
- Be a messy gardener – leave dead twigs and limbs for habitat and avoid cutting back your garden until early spring. When you do cut it back, leave standing dead stalks approximately 15 inches tall for bees that nest in hollow cavities.
- Leave the leaves in the fall….overwintering pollinators like queen bumble bees need a place to hide from the elements and leaf litter, twigs, bunch grasses and rotting wood provide for that need
- Provide a shallow water source for pollinators and other insects

Here are some other resources I want you to be aware of that could be useful for you in the future.

The National Pesticide Information Center is hosted at Oregon State Univ and is a great resource for anything related to pesticides. They provide objective, science-based info about pesticides via publications, FAQs, podcasts and other outreach material and you can actually call and talk to a highly trained staff person.

local WSU extension: We have one director in Skamania and Klickitat counties, Hannah Brause, and she is an excellent resource, especially in all things ag. If she doesn't know the answer to your question, she will do her best to find it for you. So please keep her in mind.

And really, all of us are partners and we will help you find the answers to your questions, no matter who you call



A great resource that is local to our area is the Col Gorge Coop Weed Mgmt Area or CWMA

This is a collaboration between public land and natural resource managers and private landowners

Weeds follow no boundaries….this group facilitates cooperation across political borders, allowing for the most efficient and effective weed management.

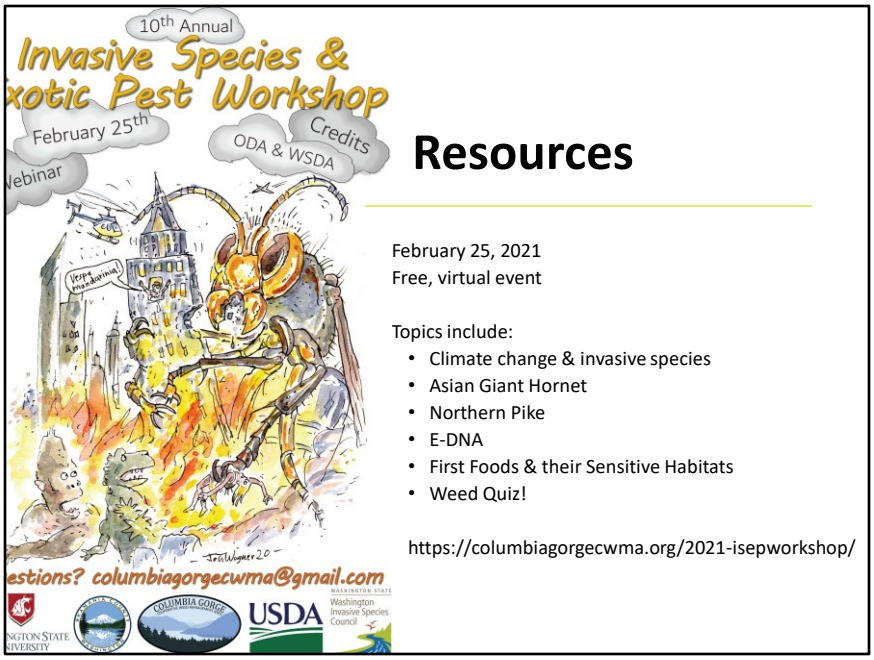
Services they provide are:

Education – for general public and professionals
They host an Email List serve that anyone can sign up for where you receive weed news, events, and job postings….infrequent emails….can opt out at any time.

Host quarterly meetings where we try to bring in someone to speak on a specific topic for part of the meeting
But also allow partners to share what's going on with them and it's a great time to ask questions and find answers from constituents.

The CWMA created the BMPs mentioned in this presentation...this info can be easily found on their website or there's a link on our website

Host an Annual ISEP…..



being held virtually this year and is free!

So here's a little plug for that….topics this year include climate change and how that will affect invasive species, E-DNA, the AGH, northern pike and flowering rush, and will also have the first speaker in the UCD's winter workshop Elaine Harvey talking about native food sources and their habitats.

There will also be a crowd-favorite which is an invasive species interactive quiz!

It will be a good day of learning and we welcome anyone to join us. You can find more info and the agenda on the cwma webpage as well as a link to register. I believe there will also be a recording of this workshop, so if you can't make it on the 25th you will be able to view it on your own time.

local native plant and pollinator demonstration garden

Located on the south side of the Hegewald Center next to the fairgrounds in Stevenson

Started the garden in spring 2017 with sheet mulching the area
Planting started in 2018 and continued in 2019 and 2020
(Mostly) native to Wa

It does host a myriad of species… we are in the transition zone here in the gorge and so we included both east side and west side plants

We have Interpretive signs showcasing why native plants are important as well as facts about pollinators and the habitat they need to thrive

And many of the plants have name tags for easy identification

I encourage you to come take a look to acquire ideas for plants you may want to install in your own garden.

There is a brochure and slide show of the progress of the garden on our webpage

Here's my contact info:

Office east of the hegewald center, next to the garden

Please stop by any time, we work M-Thursday

- More weeds not covered in the presentation

Class C

There are actually several different invasive ivy cultivars but you don't really need to know the difference b/c they are very similar and they are all bad!

It is toxic to cattle and humans, if large amounts are consumed and it also causes skin irritations and rashes for some people.

I think most of us are probably familiar with this perennial vine but may not realize how much it changes as it matures. After years of growing horizontally on the ground ivy can start to grow more erect (if it hasn't already climbed a tree or building) and it becomes shrubby in nature.

The leaves of young or juvenile plants are deeply lobed like the picture in the middle on the left shows.

As it grows vertically, the mature or adult leaves are primarily un-lobed (middle pic). Those mature stems also will form flowers and then fruit containing seed that birds can transport to new areas.

So how do we control ivy?
The top priority, especially if you have a lot of it, is to cut it out of the trees and anything else it is climbing on to prevent it from flowering and developing seed.

Vines can be cut at chest or waist high, pulling the lower part of the stems away from the base of the tree. It will take some time, but those upper branches that are no longer rooted will die and fall off.

Once you've reduced the climbing vines, you can focus on the plants on the ground. Late fall or winter is the best time to work on pulling ivy when the soil is moist. Some things to remember are to start at the edge of the infestation and work your way in. Or prioritize around desired plants. Also, be mindful of how you discard the vines…if you leave them on the ground, they will re-root. They must be laid on a tarp or hard surface to dry out (which may take several months, especially if you are starting in the winter) otherwise they will re-establish wherever they land.

If you have a large area and want to use an herbicide to help the control efforts, I've got a BMP that has specifics about how to do that.

Reed canarygrass - *Phalaris arundinacea*

Used for centuries as a forage in Sweden it was introduced as a forage, it has been used as erosion control, and water filter.

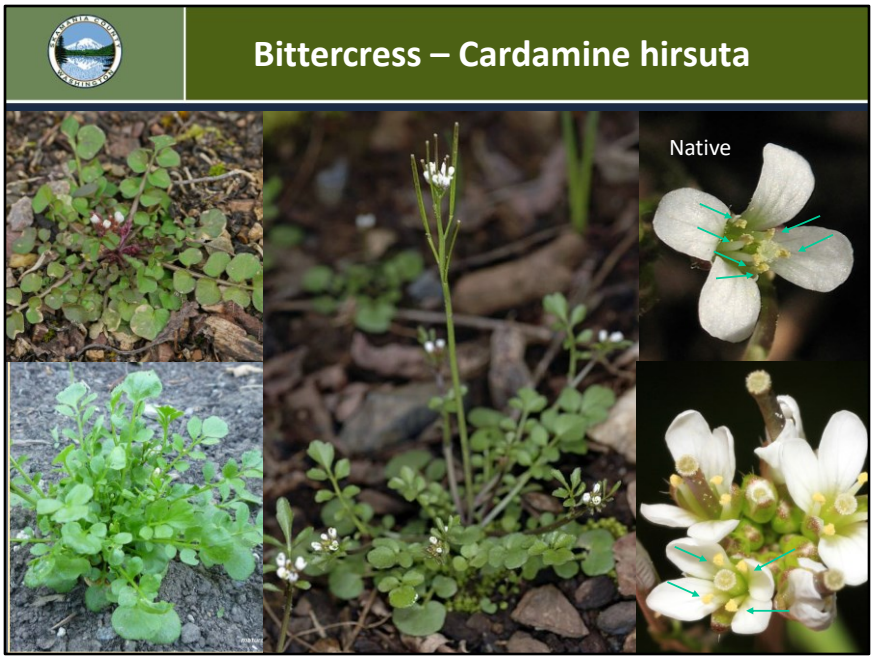
Few species eat it and stems grow up too densely to provide nesting habitat or shelter for nesting birds or mammals

•In late summer, reed canarygrass sets seed, with a grass-seed-like head that is gold, reddish or purplish in color.
•Reed canarygrass has creeping rhizomes and runners.
•Reed canarygrass is a **perennial plant** with stems that can grow to 6 feet tall.
•Leaves sprout horizontally from the main stem, and are thin, green, and coarse in texture

•Tansy ragwort is a **biennial or short-lived perennial.** It forms a rosette in its first year of growth, before bolting the following year.
•After seed production, individual plants generally die; however, new rosettes can grow from the crown and root system.
•The rosette consists of dark green ruffled leaves (see photo at right).
•Plants grow upright, with stems 2-4 feet tall.
•The flowers are bright yellow, with 12 daisy-like petals.

Poison hemlock - *Conium maculatum*

General: Biennial from the parsley family. Grows 6 to 8 feet tall, occasionally reaching 10 feet tall.
Leaves: Fern-like, dark, glossy-green leaves grow on a smooth, hollow stem with purple blotches. Finely divided in leaflets, 1/8 to 1/4 inch long. Lower leaves grow on long stalks that clasp the stem; upper leaves on short stalks.
Flowers: Small, white, 5-petaled flowers grow on stalks in 4-inch, umbrella-shaped clusters. Blooms April to July.
Fruit: Light brown, ribbed, and concave paired seeds, 1/8 inch long.
Notes: All plant parts are extremely toxic and deadly to humans and livestock when ingested. Contact dermatitis can occur if handled and long-term inhalation of the toxic vapors is poisonous. Dead canes remain toxic for up to three years. Crushed foliage has a strong musty odor. Can be confused with wild carrot (*Daucus carota), as with many* other members of the parsley family that resemble it.
Impacts: Reproduces by seed and can tolerate poorly drained soils. Occurs in a variety of places, including fields, riparian areas, roadsides, and other disturbed, moist sites.



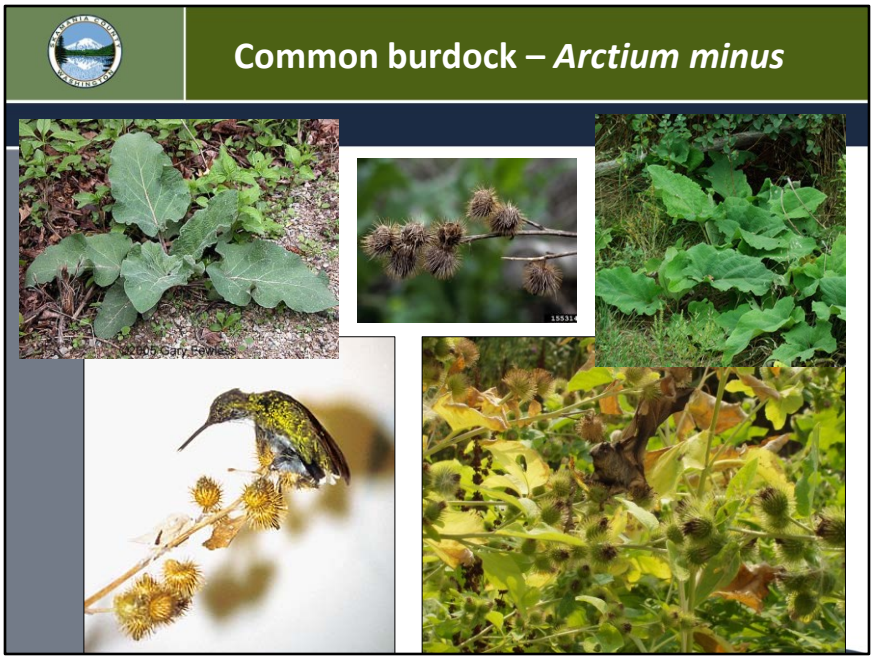
Cardamine hirsuta

Winter annual/biennial
Mustard family
Low rosette before flower stalks bolt
Reproduces by seed

Very easily pulled or dug

One native look-alike C. oligosperma
Has six stamens in flower where other has 4 (part of the flower that produces pollen)
Generally rare in urban areas

edible



Common burdock is not on the noxious weed list

This large biennial from Europe is showing up more and more b/c of its sticky seeds. Part of it are edible or used medicinally, so that's likely how it got here.

It has very large leaves and a large taproot…which can make digging it a not-so-easy task. You must get the majority of taproot to kill it.

After flowering, the bracts turn brown and form a bur, which persist on the stem through the winter. As you can see, those burs are very sticky and are a pain to remove from clothing or animal fur.
At the very minimum, if you want to control burdock, bag the seeds and discard in garbage. I would highly recommend preventing burdock from becoming established.